TYPEWRITER

LINEA 98 S

SERVICE MANUAL

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PREFACE:

This service manual provides the technical information required to service the machine.

SUMMARY

Chapter 1 provides a brief description of how to unpack and use the machine.
Subsequently, the operations necessary for efficient servicing are described.

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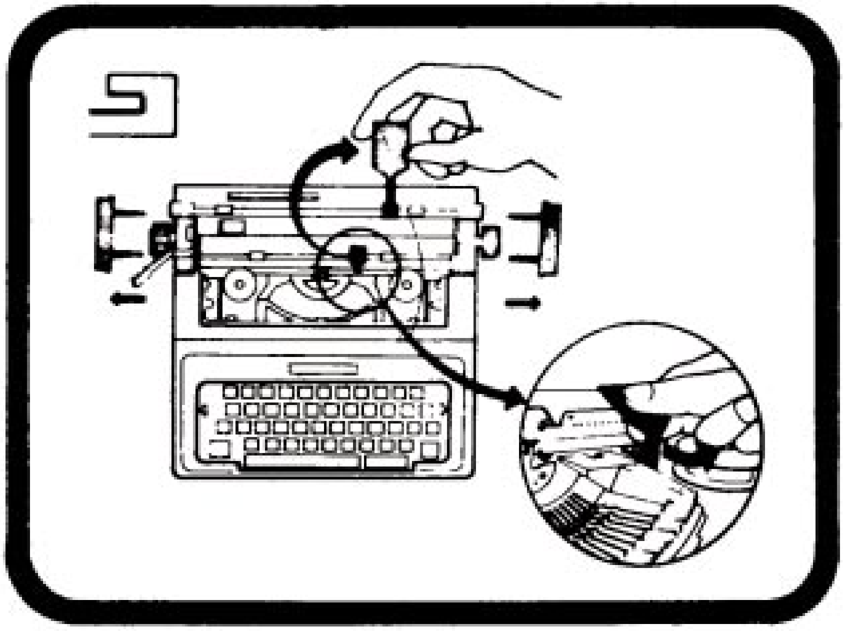
1. UNPACKING AND OPERATING INSTRUCTIONS

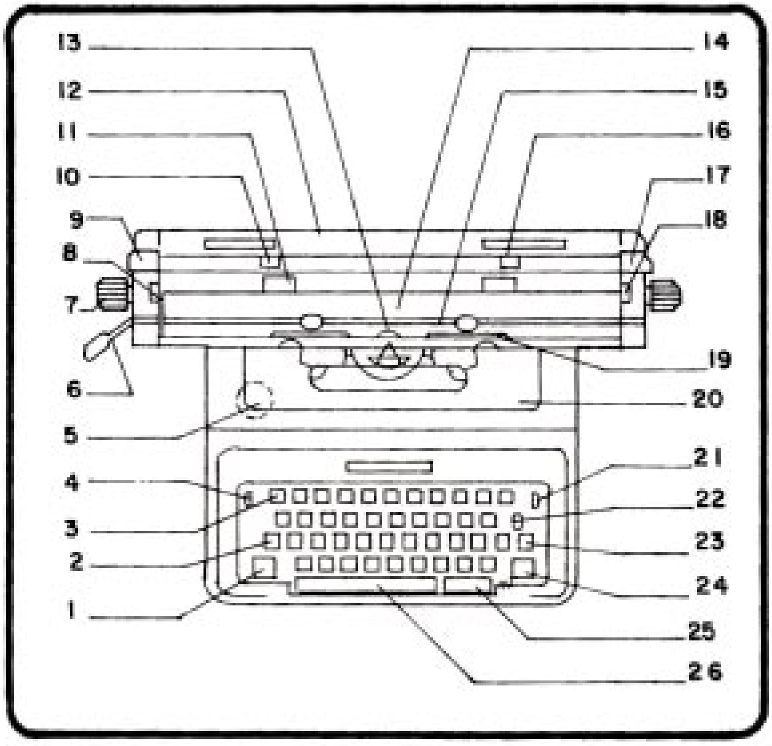
1.1 UNPACKING THE MACHINE



1) Remove the carriage stops by pulling them outwards.
2) Remove the top cover.

   Remove the type basket stop.

1.2 MACHINE COMPONENTS



1. Left Shift key
2. Shift Lock key
3. Margin release and automatic indent key
4. Lever for setting and clearing tab stops
5. Touch regulator
6. Line space and carriage return lever
7. Platen feed knob
8. Line space selector
9. Left carriage release lever
10. Left-hand margin stop
11. Sliding paper guide
12. Paper supporting rods (18 inches only)
13. Card guide
14. Erasure table
15. Paper bail
16. Right-hand margin stop
17. Right-hand carriage release lever
18. Paper release lever
19. Transparent deflectors
20. Cover
21. Ribbon colour selector
22. Backspace key
23. Tab key
24. Right Shift key
25. Automatic repeat space bar
26. Space bar

1.3 OPERATING THE MACHINE

1.3.1 RELEASING THECARRIAGE

Using either lever 9 or 17, the carriage may be released so that it may be moved it directly to the desired position.

1.3.2 RELEASING THE PAPER

When the paper release lever 18 is turned forwards, the paper is released from the pressure of the paper rollers situated on the bail, thus enabling the operator to align the sheet or correct its position manually.

1.3.3 USING THE MARGIN STOPS

Margin stops 10 and 16 are used to set the start and end of the print line. The right-hand margin stop also rings the bell a few spaces before the end of the line and, after the last available space, activates the keyboard locking device to prevent overlapping characters from being printed.

1.3.4 SETTING THE LEFT MARGIN STOP

Move the carriage until the central notch on the card guide (13) is aligned with the point where you want the print line to start.

Move the left-hand margin stop (10) to the right until it locks into position.

1.3.5 SETTING THE RIGHT MARGIN STOP

Having moved the carriage to align the notch on the card guide (13) with the point where you want the print line to end, move the right-hand margin stop 16 to the left until it locks into position.

1.3.6 PAPER GUIDE

Having set the margin stops in position, we recommend you move the paper guide 11 against the left edge of the sheet: by doing this, constant pagination will be obtained as all subsequent sheets will be set in exactly the same position.

1.3.7 LINE SPACE LEVER

The line space lever (6) is used for the following purposes:

- To change the print line
- To move the carriage to the start of the line

1.3.8 LINE SPACE SELECTOR

In positions 1, 2 and 3, the line space selector (8) regulates the distance between the print lines. When set in position “O” (platen released), signs or words that are not to be aligned with the print line (e.g.: bases or exponents) may be typed without losing the basic line space position which is automatically restored as soon as the selector is returned to its original position and the platen is turned using the knobs.

1.3.9 PLATEN RELEASE KNOB

When pressed, the platen release knob (7) releases the line space mechanism: it is particularly useful for realigning the printing position on a typed sheet reinserted in the machine for corrections, etc.

1.3.10 MARGIN RELEASE AND INDENT KEY

To print outside the margins without moving them, simply press the margin release key (3).

By holding down this key while a carriage return is being executed, you can obtain an indent of 5 spaces with respect to the left margin on the following line, e.g. for the first line of a paragraph.

1.3.11 MOVING HALF A STEP

The space bar (26) is not only used to separate two consecutive words but also to obtain a “half step” indispensable for correcting a word in which a letter has been omitted without having to erase the whole print line. If, for example, you have written ”AN OLIVETI MACHINE” to correct the mistake, proceed as follows:

1- erase the word OLIVETI
2- move the typing point to the letter N of the word AN
3- type a space
4- press and hold down the space bar (26), and type the letter O
5- release the space bar
6- repeat steps 4 and 5 to type all the letters in the word OLIVETTI.

1.3.12 AUTOMATIC REPEAT SPACE BAR

To move the carriage quickly from the keyboard, press the automatic repeat space bar (25).

1.3.13 RIBBON COLOUR SELECTOR

When the selector (21) is set in its upper position, the upper part of the ribbon (normally black) is used while when the selector in set in its lower position, the lower part of the ribbon (normally red) is used.

When the selector is set in its middle position, the machine types without using the ribbon, for stencil applications.

1.3.14 TOUCH CONTROL

This device (5) located under the machine cover enables the operator to adapt the keyboard for a lighter or heavier touch, as desired.

1.3.15 TAB KEY

Words or numbers may be tabulated on this machine by using the tab key (23) having set the tab stops using the lever (4).

1.3.16 SETTING TAB STOPS

Move the carriage until the notch on the card guide (13) is aligned with the point where the first column is to be set and then turn the tab stop lever (4) upwards. Move the carriage to the start of the second column and set another tab stop. Continue in this way for any further columns to be set.

1.3.17 ALIGNING DATA IN COLUMNS

Having set all the necessary tab stops with the carriage at the start of the print line, simply press the tab key (23) to move quickly and automatically to the start of the first column. Having typed the word or number concerned, move to the start of the second column by pressing the TAB key again. Proceed in the same way for the other columns.

1.3.18 CLEARING TAB STOP

To clear just one tab stop, move to it using the tab key (23) and then turn the lever (4) downwards.

To clear all tab stops, first move the carriage to the start of the print line, then turn the lever (4) downwards and, holding it in this position, press the tab key (23).

1.3.19 CHANING THE RIBBON

Having removed the cover, first remove the ribbon from the ribbon lift mechanism and then the spools from the pins holding them. Assemble the new ribbon, making sure that:

1. the eyelet, normally located about ten cm from the end of the ribbon, is inside one of the spools.
2. the red part of the ribbon is at the bottom.

1.3.20 MAINTENANCE

We recommend that the machine be protected against the dust using the hood provided and that the platen and the characters be cleaned periodically with alcohol. For effective, periodic maintenance of the machine and any technical servicing required, Olivetti’s Customer Engineering Department will provide you with a quick and efficient service for a moderate fee.

■

2. TESTING THE MACHINE

This chapter describes the operations required to test the machine's functions.

Before any other action is taken, we recommend you test any defective functions to ensure that the fault is correctly identified.

Having carried out any repair work, the machine should be cleaned thoroughly, lubricated and subjected to a general test.

2.1 CARRIER

Type the following characters alternately in upper and lower case:

`Kk   Ll   Xx`

2.2 STOPS

Check the stops of the four typebars on the left, the four in the centre and the four on the right. Try typing all the characters with maximum force to make sure that none of them perforate the sheet.

2.3 TANGENT PLANE

Type all letters and symbols with minimum force both in upper case and lower case modes.

2.4 RIBBON COLOUR SELECTOR

Type some of the tallest and shortest characters, for example:

- In upper case: `Q    %    Ñ-Ñ Ñ`

- In lower case: `ú    q    _`

2.5 INVERTING THE RIBBON

Check that the ribbon may be inverted with extreme ease.

Then check, by typing, that this operation is performed rapidly on both sides without any changes in the impact of the character.

2.6 TESTING THE MARGIN STOPS (AND AUTOMATIC MARGIN STOPS)

Check that the margin stops may be moved manually: using automatic engagement, little force should be required.

2.7 CONSTANT MARGINS

Set the left margin stop in the desired position and type an I; release the platen using the knob and, having moved the carriage to the end of its travel, execute a carriage return.

Repeat the operation several times and type an I at the start of each line.

Carry out this test with the margin stop situated near the start of the line, then with it set at about a third of its travel and subsequently at two-thirds of its travel.

2.8 LEFT-HAND AND RIGHT-HAND MARGIN STOPS, INDENTED LINE AND MARGIN RELEASE

Set the left-hand margin stop at one third of the travel of the carriage and the right-hand margin stop at two thirds of the travel.

Mark the two positions by typing an I and release the platen. Execute a carriage return and type a few letters; execute another carriage return, press the margin release key and move one step back.

Having gone past the left margin, start typing to check that this operation proceeds correctly.

Move the carriage close to the right margin stop, type a few letters and check that the keyboard lock is activated.

Repeat the same operation several times; press the margin release key, checking that you can continue to type.

Execute a carriage return and check that the carriage stops at the left margin.

Type twenty characters; press the margin release key and, at the same time, execute a carriage return, to check that the automatic indent is carried out after ten steps with Pica font style characters and twelve with Elite font style characters; repeat the test several times.

2.9 TABULATING DATA

2.9.1 SETTING TAB STOPS

Set tab stops in line with the arrows, typing a full stop. Check the setting by tabulating with the 1 key and typing a zero.

2.9.2 NORMAL TABULATION

Release the platen and tabulate using the 1 key at the first tab stop. Press the tab key again and, using the tab stop clear key, clear the second and third tab stops. Return to the start of the print line and check tabulation with all keys by typing a zero and lifting your finger immediately off the key pressed.

2.9.3 FAULTY TABULATION

(holding the key down until the carriage stops)

Repeat tabulation using all keys, holding each one down until the carriage stops.

2.9.4 PARTIAL CANCELLATION

With reference to the operation described previously, cancel also the first tab stop, return to the start of the print line and tabulate again. Check that there is no return to the fourth tab stop.

2.10 PRINTING IMPACT

Check that no faults occur when one key is pressed repeatedly; then type all the letters repeating them twice consecutively in upper and lower case mode, first with minimum impact and then with maximum impact.

2.11 LINE SPACE

Set the margin stop at number 1 of the test page and the line space at position 1; then execute twenty line spaces. Repeat the operation for line spaces 2 – 3 – 4 without reaching the twentieth line space, to avoid unloading the sheet.

2.12 PRINT TEST

This is the last test. Check printing by typing, in upper case mode, all the letters and symbols, alternating them with the letter H taken as a model for comparison. Perform the same operation in lower case mode, positioning the letters exactly below the upper-case characters typed previously. Terminate the printing test with a short phrase (of your choice).

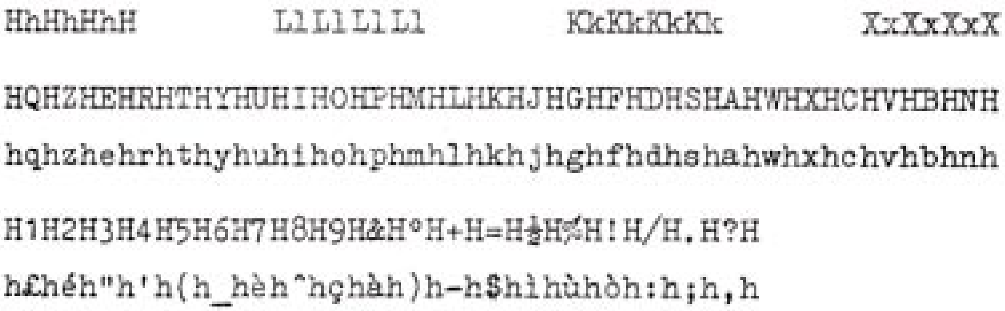
■

3. ALIGNING THE PRINT

The elements involved in determining typewriting quality are:

1) Uniformity and impact of print between one line and the next;
2) Uniformity and impact of print all the way along the line;
3) Uniformity and clarity of characters printed;
4) Alignment between upper-case and lower-case characters;
5) Uniformity of print around the character, both at the top and at the bottom;
6) Uniformity of print around the character, both on the left and on the right;
7) Constant distance between characters;
8) Equidistance between upper-case and lower-case version of the same character;
9) Regular impact of the same character;
10) Uniformity of impact between upper case and lower case characters;
11) Alignment of left side characters with right side characters.

An example of typing on a well-aligned machine is given below:



HhHhHhH LlLlLlLl KkKkKkKk XxXxXxX

HQHZHEHRHTHYHUHIHOHPHMHLHKHJHGHFHDHSHAHWHXHCHVHBHNH

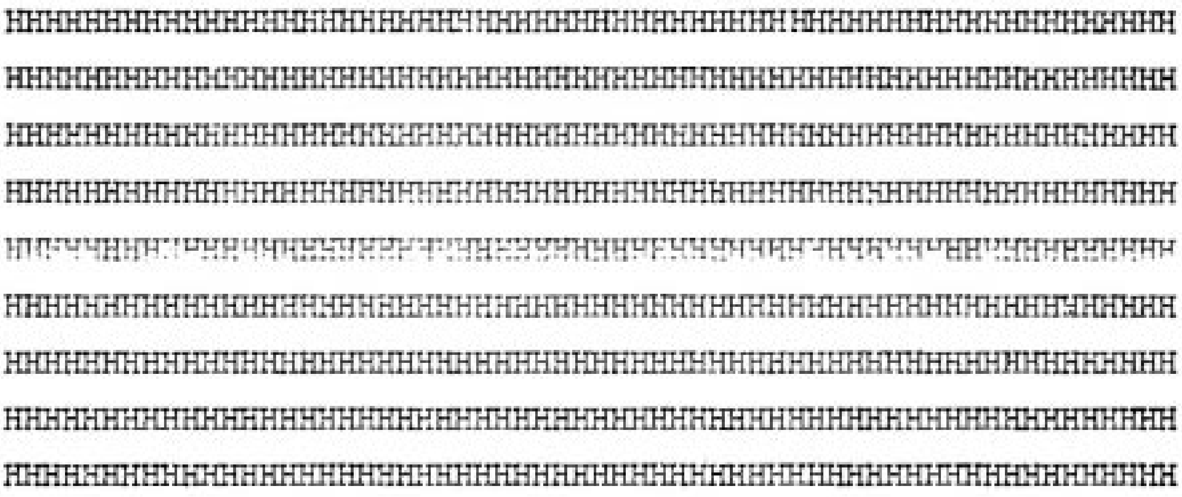
hqhzhehrhthyhuhihohphmhlhkhjhghfhdhshahwhxhchvhbhnh

H1H2H3H4H5H6H7H8H9H&H°H+H=H½H%H!H/H.H?H

h£héh"h'h(h_hèh^hçhàh)h-h$hìhùhòh:h;h,h

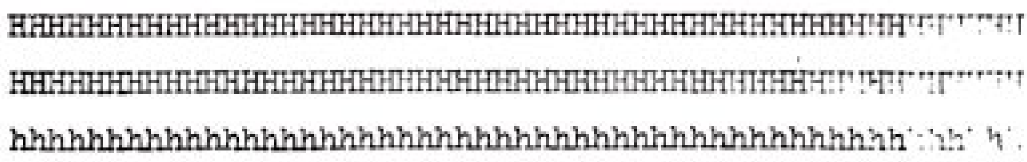
3.1 CORRECTING DEFECTS

1) If the print impact varies from one line to another, as shown in the example below:



the cause is an eccentric platen, which may be checked by setting the line space to zero, releasing the feeders and turning the platen quickly by hand. Oscillations of the paper bail will be observed. A more accurate test may be carried out by checking the stops all the way around the platen. In this case, the platen or the rods must be replaced, as it is not possible to establish at the customer's site, whether the eccentricity is due to the rubber, the frame or the platen rods. In a laboratory, the cylindricality of the platen may be checked on a bench lathe.

2) If the print impact is not consistent all the way along the line, as shown in the example below:



the possible causes are:

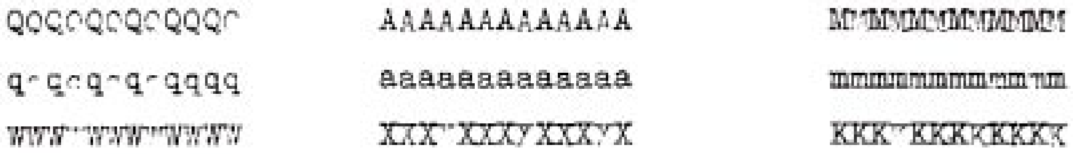
a) Conical platen;

b) Platen axis not parallel to the stop carrying axis, because the bushes on the sides are not parallel to the fixed guide.

This may be verified by checking the stops of one typebar all the way along the platen. You may then proceed to replace the platen as it is not possible to establish, at the customer's site, which of the two is the cause of the fault. If the fault persists, this means that the sides are not axial so the machine must be taken to the laboratory.

3) The impact and clarity of the characters are not uniform.

Example:



The causes may be:

a) Faulty stops. Check all the stops as follows:

Place a 0.08 mm sheet (Bond type) on the platen, position the black ribbon and a 0.06 probe slightly held in the type basket; repeat the operation with another 0.08 mm. sheet on the platen without the ribbon (that is, in neutral). These operations are performed in lower-case mode. Correct the brakes that do not respect these conditions.

b) Typebar play in the comb of the type basket.

Replace the typebar.

c) Typebar play in the crescent.

Replace the crescent.

d) Typebar not centred with the character guide.

Correct with suitable pliers.

e) Impact strength.

Check that the impact strength is uniform for all characters; adjust the registers.

f) Ribbon.

Check the uniformity and regularity of the ribbon ink, the colour selector stops, the regularity and quantity of ribbon feed.

g) Irregular release.

Make sure that the release is performed between 2 and 6 mm from the platen.

h) Mobile guide play.

Check the play at the front between the front guide and the guide plates situated between the stop holding tube and the top and bottom rollers.

i) Hard platen.

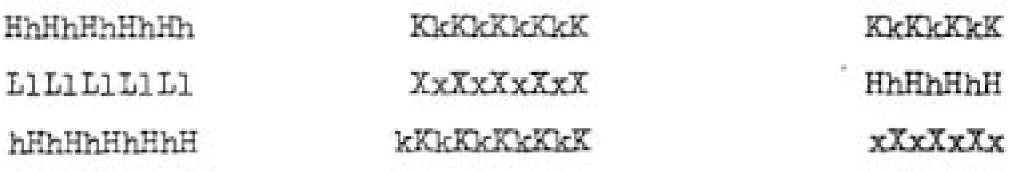
Check the hardness of the platen rubber; if it is hard, it must be replaced.

j) Slow typebars.

Check that the typebars are free in the groove on the comb of the type basket. Hardening may be due to the fact that the machine has been idle for a long time at the warehouse or because it is dirty: the typebars must therefore be cleaned thoroughly.

4) Irregular alignment between upper-case and lower-case characters.

Example:



HhHhHhHhHh
LlLlLlLlLl
hHhHhHhHhH

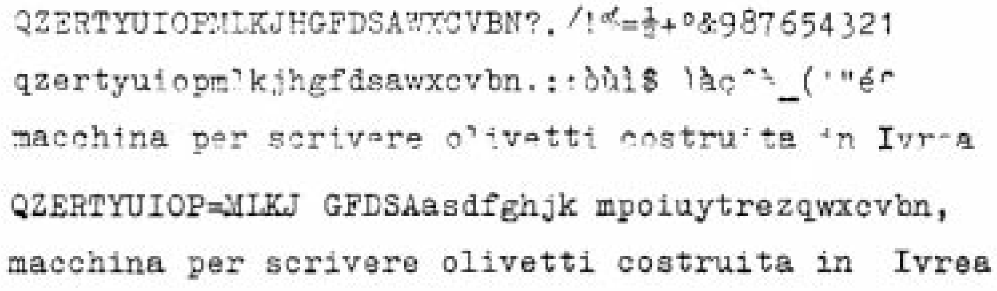
KkKkKkKkK
XxXxXxXxX
kKkKkKkKkK

KkKkKkK
HhHhHhH
xXxXxXx

a) Regulating the HhH level.

Before taking action to correct the difference in level between upper and lower case characters, regulate the position of the defects on the tangent plane. Generally speaking, lower-case characters are more likely to move out of position, so adjusting the upper-case characters, which is easier, would set the theoretical plane out of position resulting in defects in impact, colour selection, stops and on the letter plane. If in doubt, check the theoretical plane using the probe. Having completed the adjustment, make sure that the screws on the supports are well tightened.

5) Print uniformity around the character, both at the top and at the bottom.



QZERTYUIOPMLKJHGFDSAWXCVBN?./!°=½+°&987654321
qzertyuiopm'kjhgfdsawxcvbn.::òùl$ \àç^`_('"é^
macchina per scriv-re o'ivetti costru'ta 'n Ivr-a
QZERTYUIOP=MLKJ GFDSAasdfghjk mpoiuytrezqwxcvbn,
macchina per scrivere olivetti costruita in Ivrea

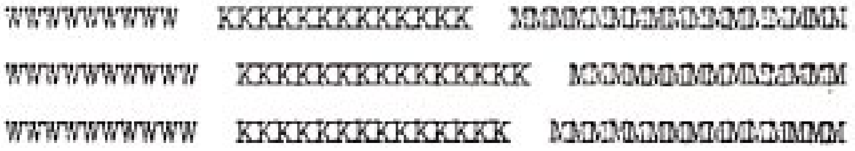
Example:

This depends on the regulation of the tangent or typing plane, which is obtained by adjusting the carriage registers.

N.B. An adjustment on the tangent plane may affect the following adjustments: stops, releases, space bar release, tabulator.

6) Printing uniformity between the left and right sides of the character.

Example:


WWWWWWWWW KKKKKKKKKKKK MMMMMMMMMMMMMMM

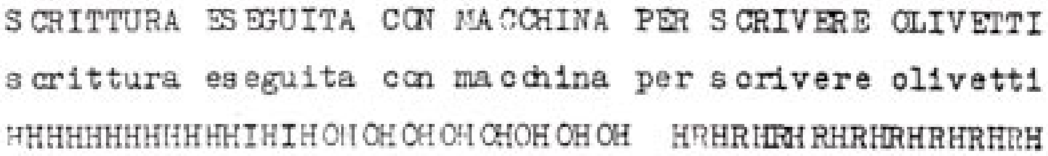
WWWWWWWWWW KKKKKKKKKKKKKK MMMMMMMMMMMM

WWWWWWWWWW KKKKKKKKKKKKK MMMMMMMMMMMMM

This fault arises when the carriage does not run parallel to the type basket; to correct this defect, you must adjust the carriage registers, the eccentric part of which must be on the same side, that is, the right.

7) Irregular distance between the characters, both upper case and lower case.

Example:


SCRITTURA ESEGUITA CON MACCHINA PER SCRIVERE OLIVETTI

scrittura eseguita con macchina per scrivere olivetti

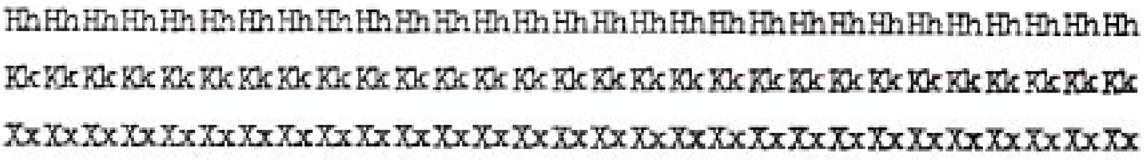
HHHHHHHHHHHHHIHIHOHOHOHOHOHOHOHOH HRHRHRHRHRHRHRHRHRH

May be caused by:

- lateral play of type basket: the calibrated screws may be replaced;
- axial platen play: this is regulated using the nuts on the rods; in addition, check the regulation of the release gear (with the rack) and oscillator play.

8) Equidistance between upper-case characters and lower-case characters.

Example:


HhHhHhHhHhHhHhHhHhHhHhHhHhHhHhHhHhHhHhHhHhHhHhHhHhHhHhHh

KkKkKkKkKkKkKkKkKkKkKkKkKkKkKkKkKkKkKkKkKkKkKkKkKkKkKkKk

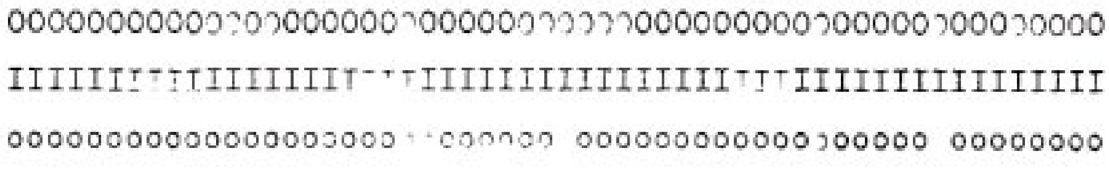
XxXxXxXxXxXxXxXxXxXxXxXxXxXxXxXxXxXxXxXxXxXxXxXxXxXxXxXx

This defect may be caused by:

- The left transport arm is crooked or broken: replace the entire bridge;
- Incorrect adjustment of theoretical plane: check the height regulation of the type basket as indicated in step 4).

9) Irregular impact of the same character.

Example:



The causes of this defect may be:

a) The typebar strikes the character guide: set it in a central position with respect to the guide;

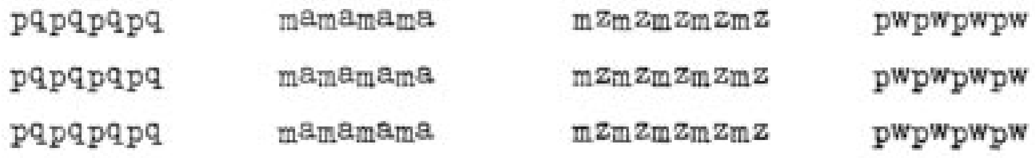
b) The ribbon is not fed regularly, it remains locked in the inverter fork or the film is defective: rectify the movement of the ribbon and, if necessary, change it;

c) The toothed axis may have worn teeth: replace it;

d) The feed tooth of the mechanism is worn: replace the lever of the first transmission gear.

10) Alignment of left-side characters with right-side characters.

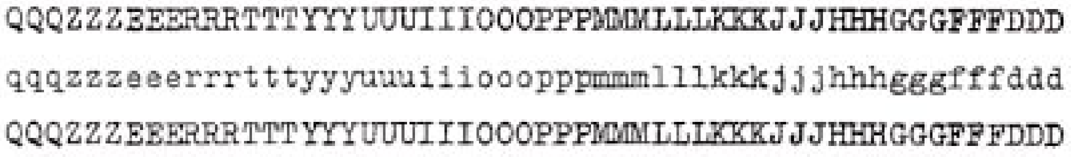
Example:



The defect depends on the centring of the character guide To centre it, remove the carriage, put the type basket in the upper-case position, then place a bronze punch on the side of the character guide (right or left, according to the side on which it is not centred) and, with a few strokes of the typebar, correct the position of the character guide.

11) Uniformity of impact between upper-case characters and lower-case characters.

Example:



This defect depends on the position of the theoretical plane: set it in the correct position.

4. ALIGNING THE TYPEBARS

4.1 WARNINGS

This is a particularly delicate procedure and must be carried out exclusively at the factory, by qualified, experienced engineers equipped with the correct tools.

It is assumed that the machine has already been checked and that it only requires a few characters to be regulated.

Use a 0.08 mm. sheet (Bond type) and set the impact register to its minimum. Execute a print test alternating all the symbols and letters, upper-case and lower-case, with the letter H. Make sure that the letter H is central with respect to most letters; this is the essential condition to avoid alignment with an H model that does not combine perfect tangency, stopping and centring. If this condition is not respected, correct the letter H. Then start with H Q and continue with all the letters, numbers and symbols.

When compared with the letter H, a letter may be:

a) Too high
b) Too low
c) Shifted to one side
d) Clearer at the top than at the bottom
e) Clearer at the bottom than at the top
f) Clearer on one side than on the other
g) Tilting to the left or right
h) Manufacturing defect or defect caused by bent characters

In any of the cases listed above, proceed as follows:

4.2 LETTER TOO HIGH

With elongating pliers (UA 8940/2 or 8125/7 type), regulate the bottom part of the typebar so that the three rollers on the pliers act on points A-B-C (fig. 1). In this way, the typebar will be shortened, as can be seen in figure 2 (position indicated by dotted lines). Then try with the H to check that alignment has been achieved and that the character strikes on a plane that is tangent to the platen; having performed this operation, however, there is likely to be more impact on the upper part.

Continuing to use the pliers at points A B C, shorten the typebar further and then, inverting the pliers, work at points D E F to move the top part of the typebar into a vertical position (fig. 3 – position indicated by dotted lines). In this way, the character is printed on a plane. Check the stop in the type basket which, in this case, will be defective. Using crushing pliers, pinch tab S at its centre, taking care to grip the largest possible surface area with the pliers so as to expand the material and obtain a perfect stop.

These operations must be performed in steps and with great precision to avoid deforming and weakening the typebar.

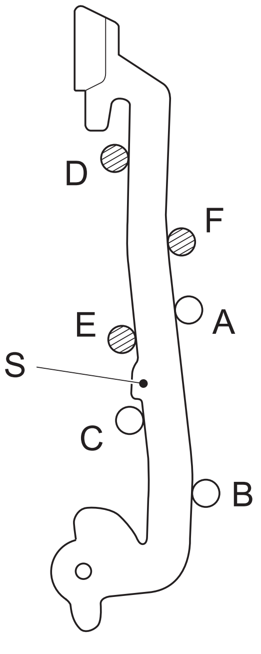


Fig. 1

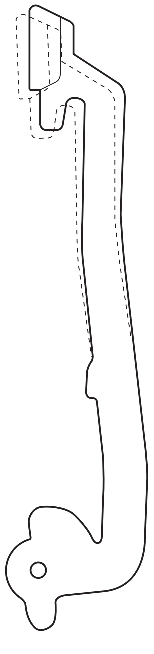


Fig. 2

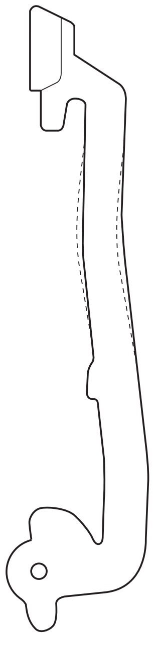


Fig. 3

4.3 LETTER TOO LOW

With the elongating pliers applied as shown in figure 1 at points A1 B1 C1, elongate the typebar as shown in figure 2 (position indicated by the dotted lines). According to the elongation obtained, the stop against the type basket will be accentuated to some degree and the character will have a reduced impact at the top.

When the pliers are applied at points D1 E1 F1 (fig. 1), the character will strike the paper on a plane with the platen again. The stop is likely still to be excessive and the typebar tab will have to be filed with a soft file. The tab must be filed in such a way that the tab touches the type basket on a plane, with the entire surface of contact.

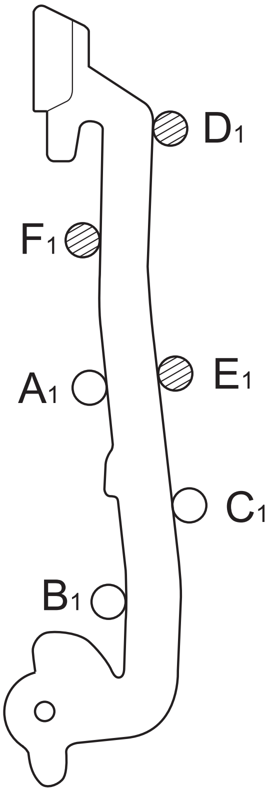


Fig. 1

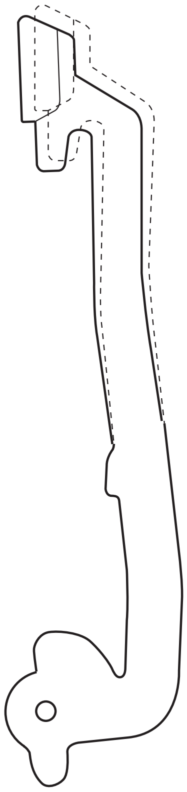


Fig. 2

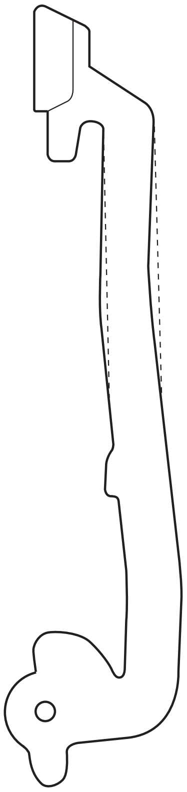
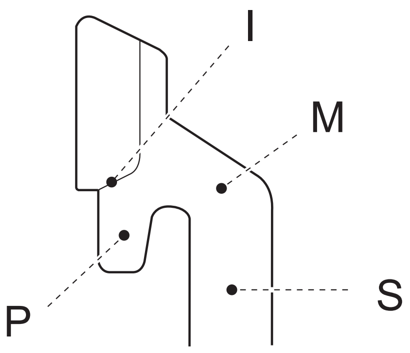


Fig. 3

N.B. The result is obtained by gradually bending the typebar several times, otherwise it may be deformed excessively, obliging the engineer to file it excessively.

4.4 LETTER SHIFTED TO ONE SIDE

If the character is shifted to the left or right, 713738 k 70 pliers are required. Fit them below the character, at the front if the character is shifted to the right or at the back if it is shifted to the left; close the pliers gently keeping them always in contact with the bottom part (I) of the character, so as not to bend the appendix (P) of the typebar. Having performed this operation, the character will be tilted.



First of all, make sure that the typebar enters the character guide centrally, as, having used the 7137383 k 70 pliers, the typebar could be bent in the area (P), so it could touch the character guide. In this case, the alignment should be made using a clamp, inserting it in the area (s) and holding the typebar outside the character guide; then, using the UA 8940/3 pliers, bend the typebar on the same side to which the character is tilting, until a vertical position and perfect entry in the character guide are obtained.

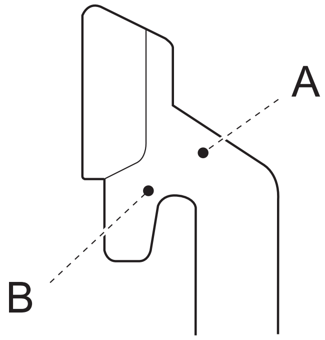
At this point, the character tilts considerably, so insert the clamp in the MP area and, using the UA 8940/3 pliers, bend the character until it is vertical and aligned with the letter H. These operations must be performed in steps and with great precision, to avoid deforming and weakening the typebar.

4.5 LETTER CLEARER AT THE TOP

The letter is aligned with the letter H but is clearer at the top than at the bottom. If the impact at the top is excessively accentuated, the character should be dewelded by following the instructions described in the typebar replacement section. If the defect can be corrected without dewelding, carry out the procedure for correcting letters that are too high, as described in step a).

4.6 LETTER CLEARER AT THE BOTTOM

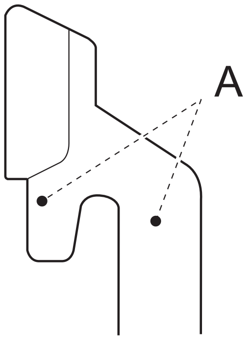
The letter is aligned with the letter H but is clearer at the bottom than at the top. In this case, you may following the procedure for correcting letters that are too low - see step b).



N.B. In cases d) - e) you may pinch the typebar slightly: in area A if the letter is clearer at the bottom or in area B if it is clearer at the top. To perform this operation, use the UA 8125/5 USAG pliers with UPA 813/2 USAG jaws. These operations are to be performed in steps, to avoid pinching the typebar excessively.

4.7 LETTER CLEARER ON ONE SIDE

The letter may be clearer on one side and consequently less on the other. In this case, we recommend the use of a special clamp, which is to be inserted in the area (Z), holding the typebar outside the character guide. Using the UA 8940/3 pliers, twist the letter slightly towards the side on which it is less clear, holding the clamp still and moving the pliers. The clamp and the pliers are useful in that, when changing the supporting method and arm, it is easier to control the movement of your hands.



4.8 LETTER TILTED TO THE LEFT OR RIGHT

Also in this case, the procedure to be performed is as indicated in f), that is, the clamp is inserted in the area (Z) holding the typebar outside the character guide and, with the UA 8940/3 pliers, tilting is to be corrected until a vertical position is obtained, checking it against the letter H.

4.9 DEFECTIVE CHARACTERS

In some cases, the characters may be defective, that is, not set in the centre or manufactured with different axes (for example, the upper-case character tilted and the lower-case vertical, or characters not with an incorrect vertical distance between the upper-case and the lower-case character, that is, when the lower-case character is aligned with the letter H, the upper-case character is higher or lower). In this case, the character is to be replaced.

4.10 FINAL TEST

Having aligned the typebars, check operation using the following standard words:

AMALGATA – PRESTAZIONE – HAWAY – DUBBIO – OXFORD – AFFRANCATURA – AIUOLE – BROMOJODICHE – REDIVIVO – ACQUARELLO – VANITA’ – GIU’ – COSI’ – PERO’ – PERCHE’

which contain all the letters in the alphabet so that it is easier to discover any alignment errors. The correction must always be made through comparison with the letter H. Another useful test is to type every letter of the alphabet in upper case, alternated with the letter H and, on the line below, the letters of the alphabet in lower case, alternated with the letter h, exactly below the line of upper-case characters.

H Q H Z H E H R H T H Y H U H I H O H P etc.
h q h z h e h r h t h y h u h i h o h p etc.

In this way, any tilting or non-centred characters will be identified immediately.

■

5. LUBRICATION

If any work is carried out, check and, if necessary, lubricate the parts listed below moderately with light oil (used for sewing machines) or lithium grease (recommended LITHIUM n° 2 - INTERNATIONAL OIL):

5.1 PARTS TO BE LUBRICATED WITH OIL:

1) Escapement rack.
2) Colour selector unit.
3) On the tie rods, at all control and connection points: tabulator, carriage return, tab stop clear, tab stop set, margin release and locking mechanism.
4) Keyboard mechanisms: tie rods, hooks, buttons.
5) Segment columns.
6) Segment revolution points with transport arms.
7) Carriage release sliding area.
8) Line space knob axis revolution points.
9) Ribbon universal flag revolution points.
10) In all cuts in the segment.

5.2 PARTS TO BE LUBRICATED WITH GREASE:

1) Escapement wheel.
2) Area in which the carriage slides move.

■

6. ADJUSTMENT

6.1 ESCAPEMENT ADJUSTMENT

In the rest position, the tooth (D1) of the escapement board must be set in a lower position (maximum clearance 0.3 mm.) than the teeth on the wheel (54), to do this, adjust screw (P.)

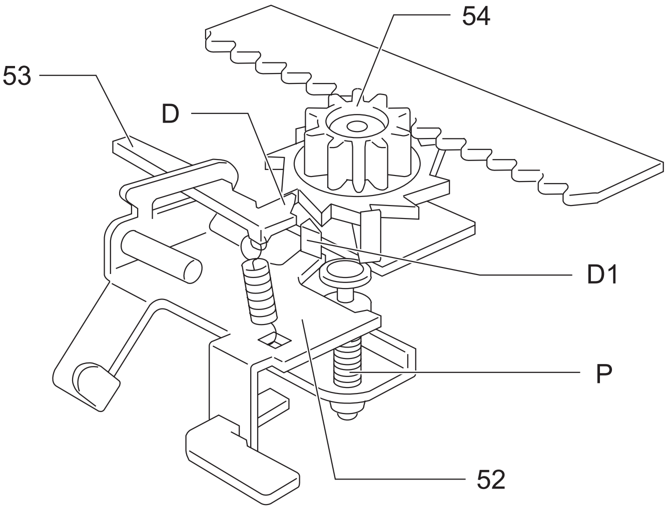


fig. 6.1

6.2 CARRIAGE PULLING SPRING

The tare of the carriage pulling spring must be within 400 gr. with the end of the string in front of the escapement wheel, and up to 500 gr. measured at the end of the carriage pulling string, 10 cm. from the end of the fixed guide.

6.3 SILENCER

1.-Check that the silencer (X) does not touch the mobile tooth A in its rest position.

2.-When the escapement wheel (B) is turned clockwise, the silencer (X) must move past the tooth (A) to prevent friction between the mobile tooth and the wheel tooth.

To obtain the indicated condition at both points mentioned previously, regulate the tab (X)

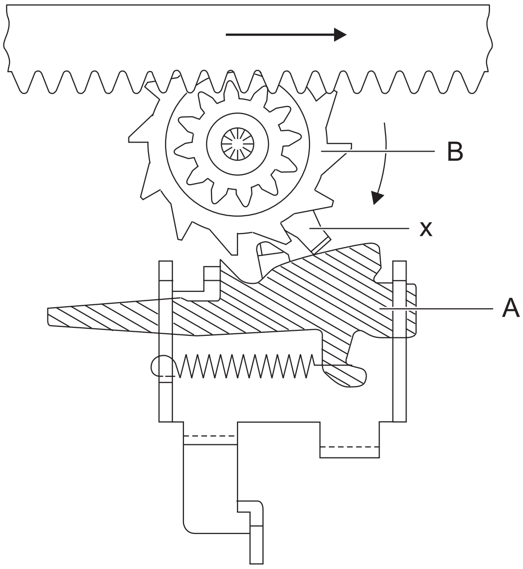


fig. 6.2

6.4 PLATEN COVER ADJUSTMENT

Check that the entire surface of the platen cover rests on the platen; if it does not, bend it as required.

6.5 BENCH BOARD ADJUSTMENT

Regulate the clearance between the platen (R) and the board (C), which must be between 1.5 and 1.8 mm. (clearance D).

(fig. 6.3)

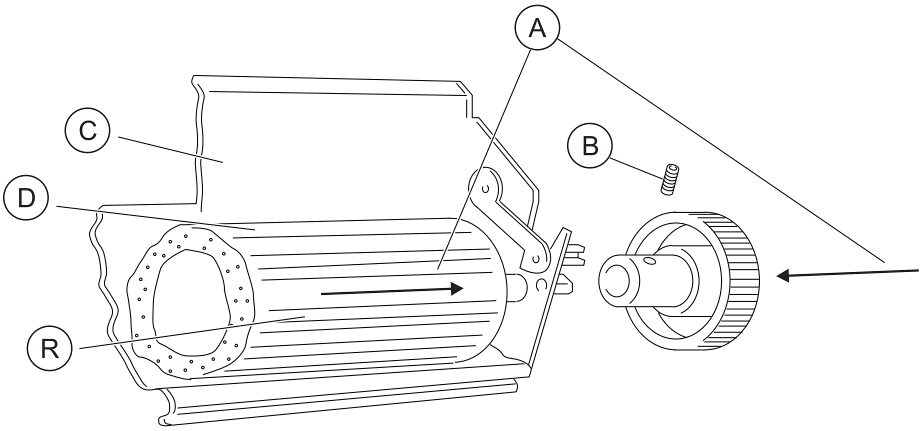


fig. 6.3

If necessary, using a screwdriver, prise the platen (R) and the board (C) further apart.

6.6 AXIAL PLATEN PLAY ADJUSTMENT

Holding the platen and the knob (A) pressed, assemble the two screws (B) on the knob.

The platen must remain free and with no axial play.

(fig. 6.3)

6.7 RADIAL PLATEN PLAY ADJUSTMENT

Push the platen to the right (C), push the platen fixing lever (A) downwards and tighten the screw (B).

(*fig. 6.4*)

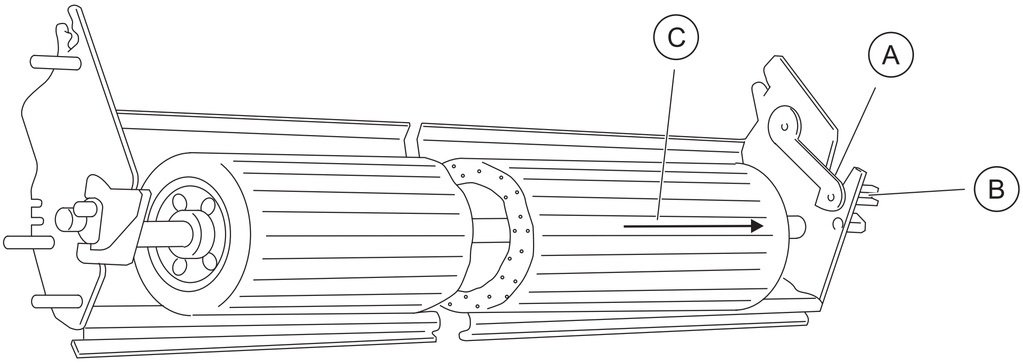


fig. 6.4

6.8 LINE SPACE ADJUSTMENT

1* Move the lever (A) to the right.

2* Activate the line space lever and check that the positioning bar (B) engages perfectly with the teeth.

3* If this does not happen, regulate the leaf spring (Z) by turning the screw (C) until the positioning bar engages perfectly with the teeth.

4* Check that the line space moves four spaces forwards (H).

If this does not happen, turn the screw (E) on the positioning bar (D), moving it until it reaches the correct position.

5* Check that the line space is well regulated by means of the lever.

Tighten the screw (E).

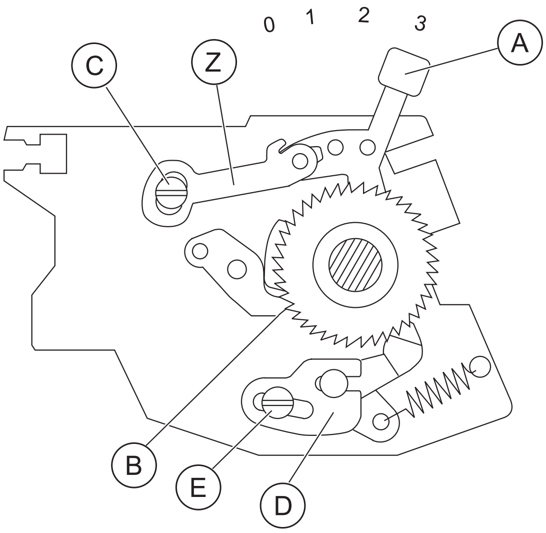


fig. 6.5

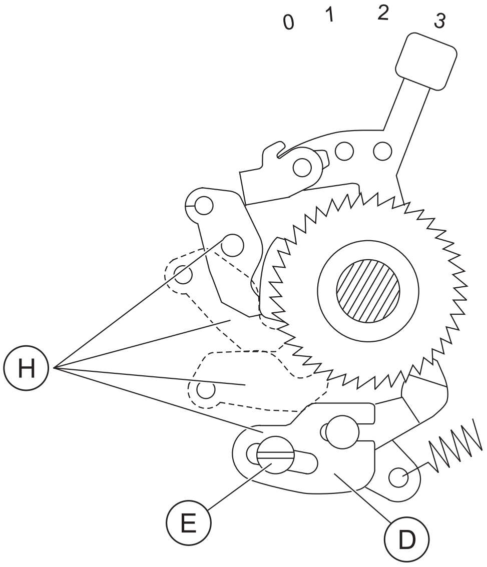


fig. 6.6

6.9 SEGMENT ARM TRANSPORT AND RELEASE SCREW ADJUSTMENT

Set the machine in a vertical position with the bottom part facing the operator.

1* Loosen the nut (D) on the carrier arm (A).

2* Move the slider (B) several times downwards so as to regulate the axes and mechanisms (C).

3* With the slider (B) in its bottom position, press until the arms and tie rods remain taut and tighten the nut (D).

4* Check that the arms of the segment (E) are not subject to pressure from the space bar arms.

5* If necessary, regulate the arms of the space bar (A) using a spanner.

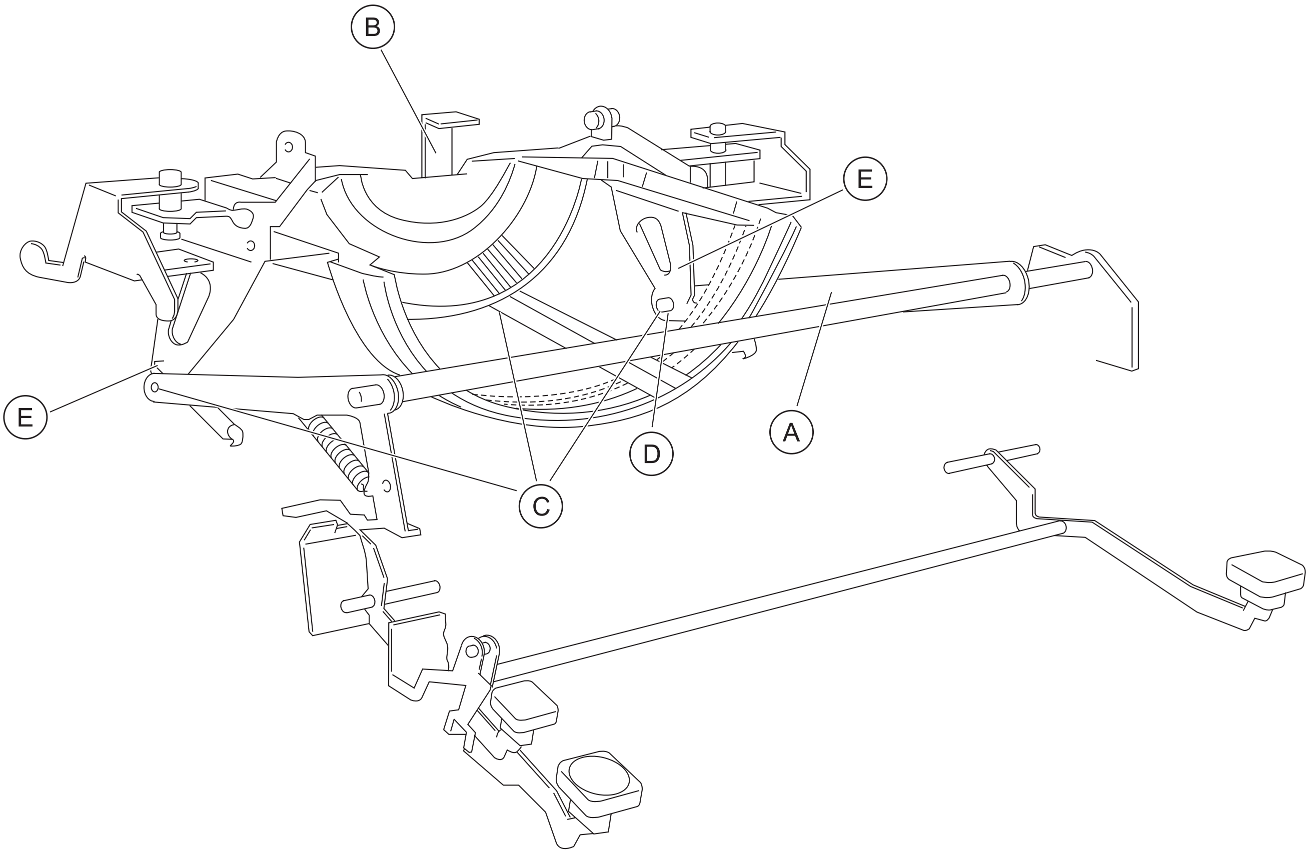


fig. 6.7

6.10 FORK PLAY ADJUSTMENT

1* Check that the play in the fork (B) is equally distributed on either side in the window (C).

If necessary, push the fork (B) against the left side of the window and move its appendix (A) towards the side where there is more play.

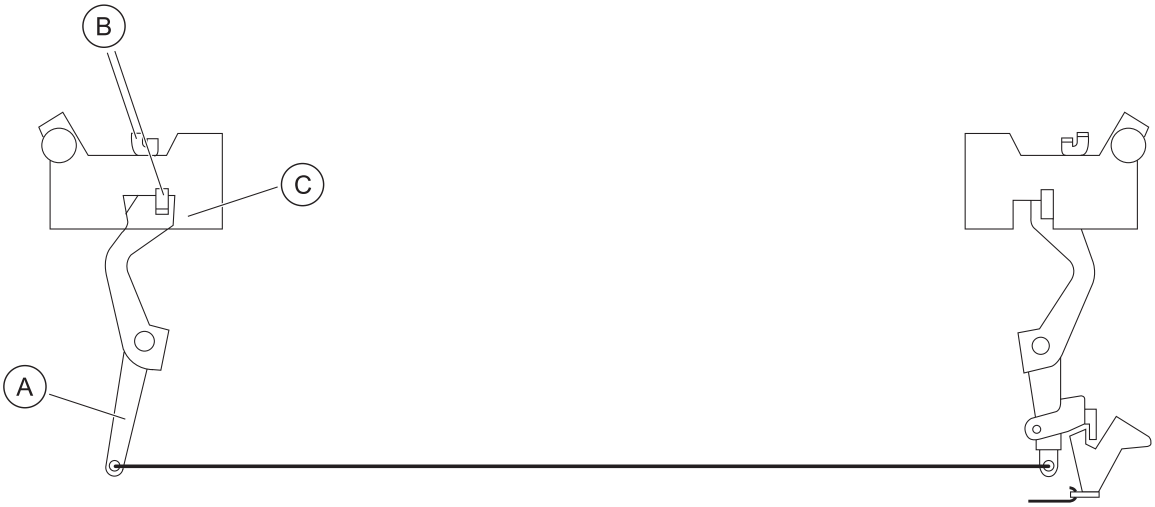


fig. 6.8

6.11 RIBBON FEED ECCENTRIC MEMBER ADJUSTMENT

1* Observe the tabs (A) of the eccentric members and check, holding one of them against the side (B) of its window, that the tab of the opposite eccentric member is at the centre of the window (C) where it is housed.

Holding one against the side of the window (B), regulate the tail of the opposite eccentric member (F) until it is obtained.

2* Check that the corresponding axis (A1) turns freely, otherwise regulate the corresponding tab using pliers.

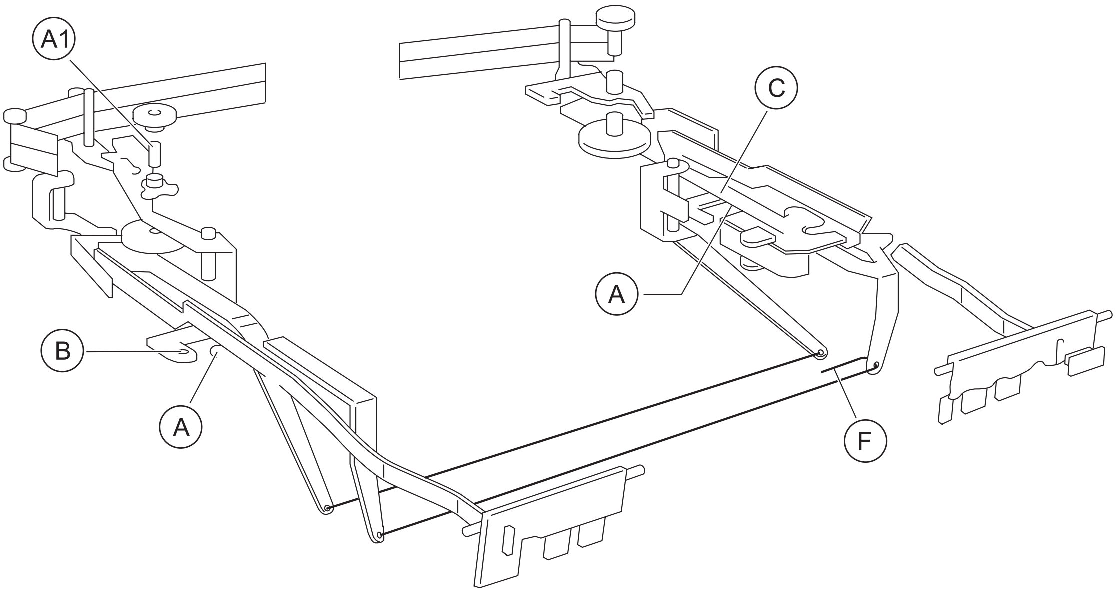


fig. 6.9

6.12 INITIAL PLAY ADJUSTMENT

1* Press the space bar down fully and check that the keys are not lifted by more than 0.5 mm from their seats. (A).

If necessary, use the spanner in the bend of the hooks to broaden the mechanism.

With the space bar on the upper case (T), press several keys one after another and check that the other keys do not move.

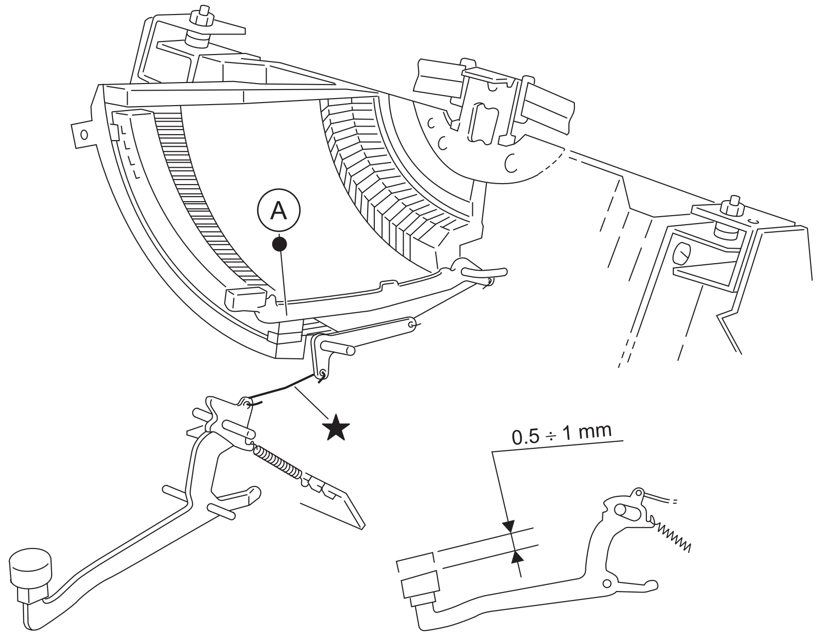


fig. 6.10

If necessary, use the pliers to eliminate this play by shortening the tie rod.

If the initial play concerns most keys, correct it using the screw (C) joining the space key, tightening the segment (D). If the initial play is caused by a bent key, correct its position using the special pliers.

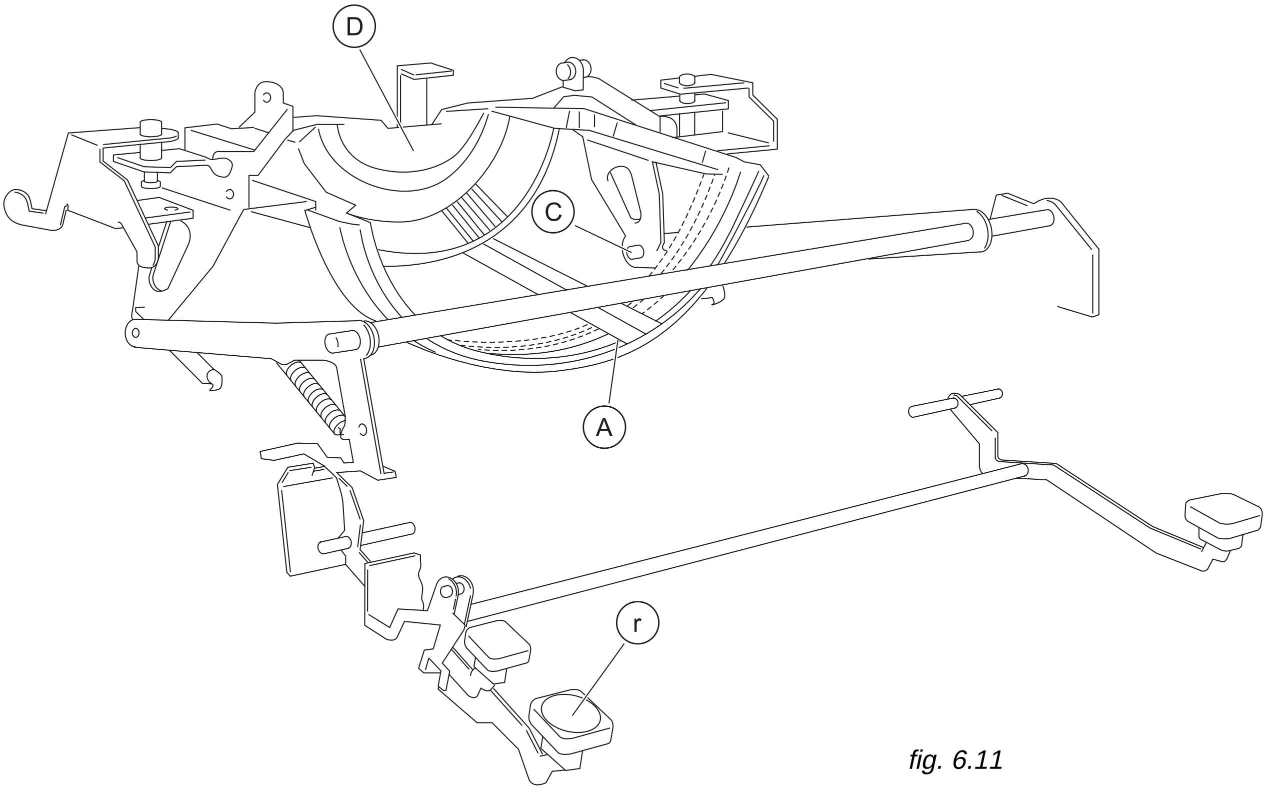


fig. 6.11

6.13 RIBBON INVERSION AND FEED ADJUSTMENT

1* By adjusting the side of the left fork (A) of the mechanism slightly, check that the positioning bar has approximately the same amount of play on either side of the window (C).

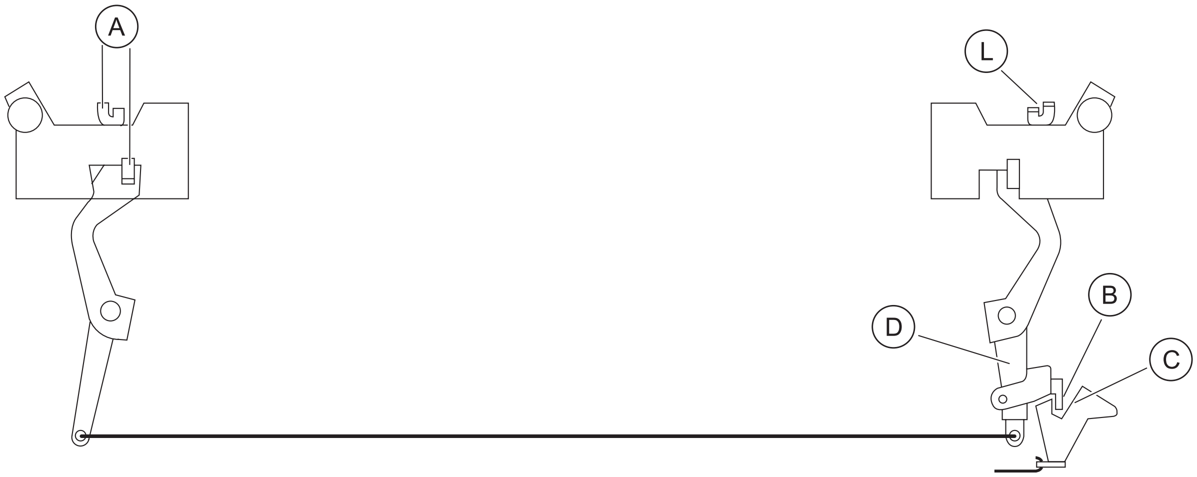


fig. 6.12

At the same time, check that when the positioning bar (B) is in the compartment (C), there is a slight clearance between the right tab (L) and the right side of the window.

If necessary, adjust the arm (D) of the positioning bar.

2* Press a key and check that the sprocket axis corresponds to the revolution changer and the other remains free.

If the axis does not turn when the key is pressed, move the feed pawl (F) as required.

If the wheel does not remain locked, regulate the locking pawl (C).

3* Activate the tabs (A) to make the change and check it on the other axis.

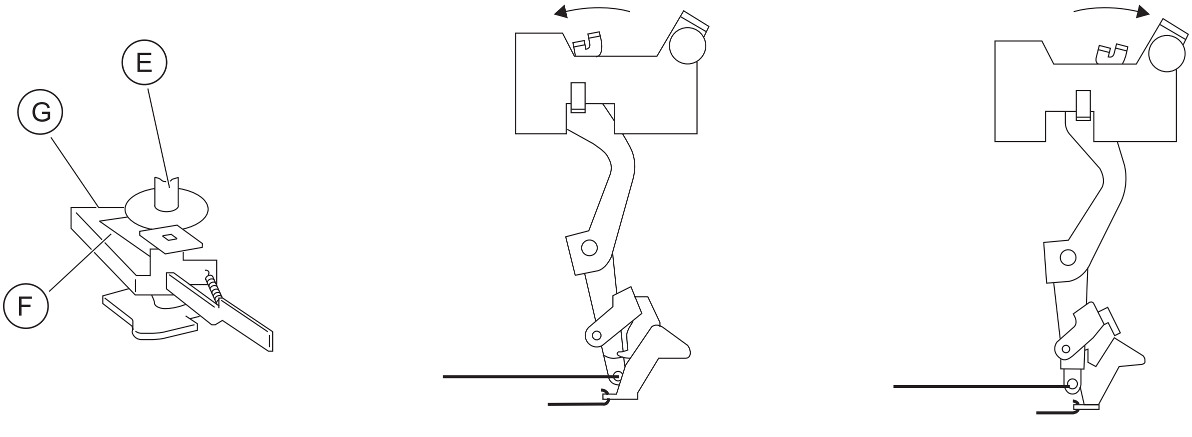


fig. 6.13

6.14 LETTER PLANE ADJUSTMENT

1* Set the colour selector to black and printing to upper case mode.

2* Press several keys, type a line of text and observe the print.

If the characters are incomplete at the bottom, loosen the screw (A), if the characters are incomplete at the top, tighten the screw (A), until correct, complete printing is obtained.

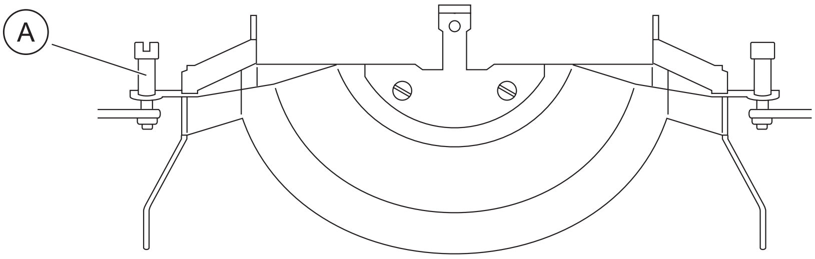


fig. 6.14

6.15 UPPER-CASE/LOWER-CASE ADJUSTMENT

1* Press a capital H and a small h alternately and observe their positions.

HhHhHhHhHhHhHhHhHhHhHhHhHh well regulated

If the small letter is too high, lower the screw (A).

If it is too low, raise the screw (A).

2* Having made the regulation, tighten the fastening nut and check that the screw has not moved, by printing another line.

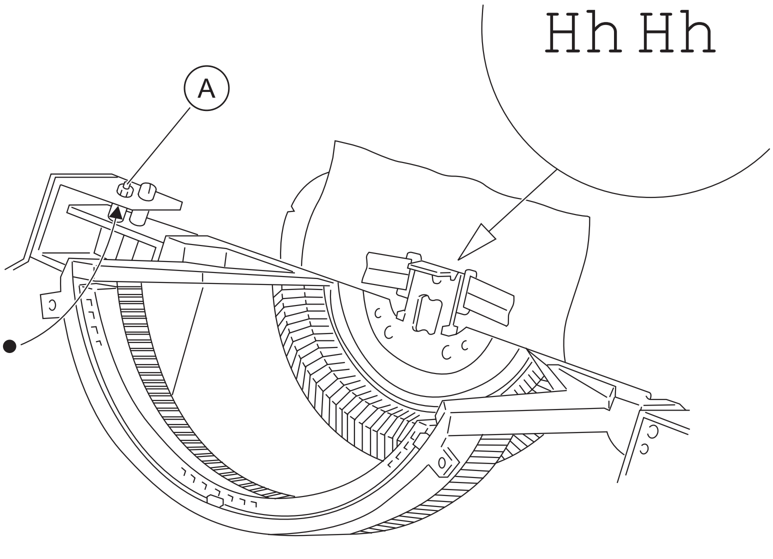


fig. 6.15

6.16 ELASTIC JOINT ADJUSTMENT

1* Check that the initial play of the space bar (A) is max.1 mm.

If necessary, using the pliers, adjust the appendix (K) forwards to remove play and backwards to increase it.

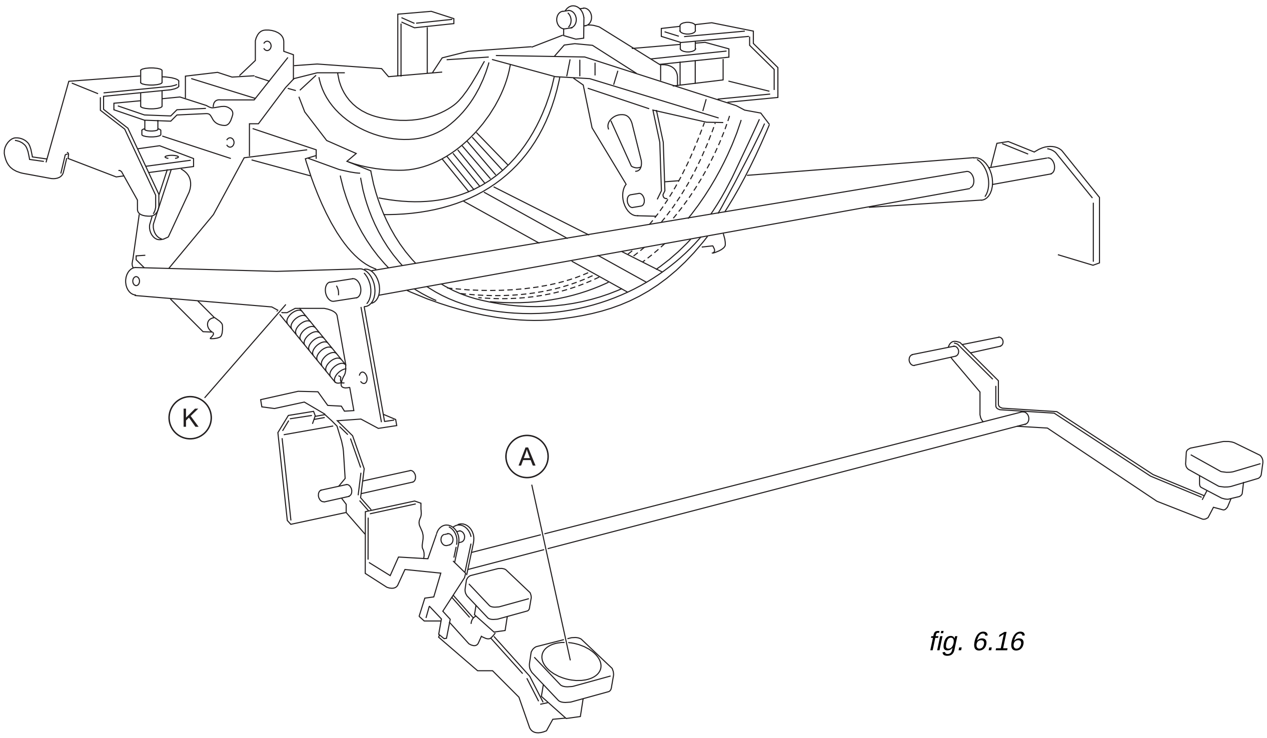


fig. 6.16

6.17 SHIFT LOCK ADJUSTMENT

1* Loosen the screw (T) fastening the shift lock plate (P).

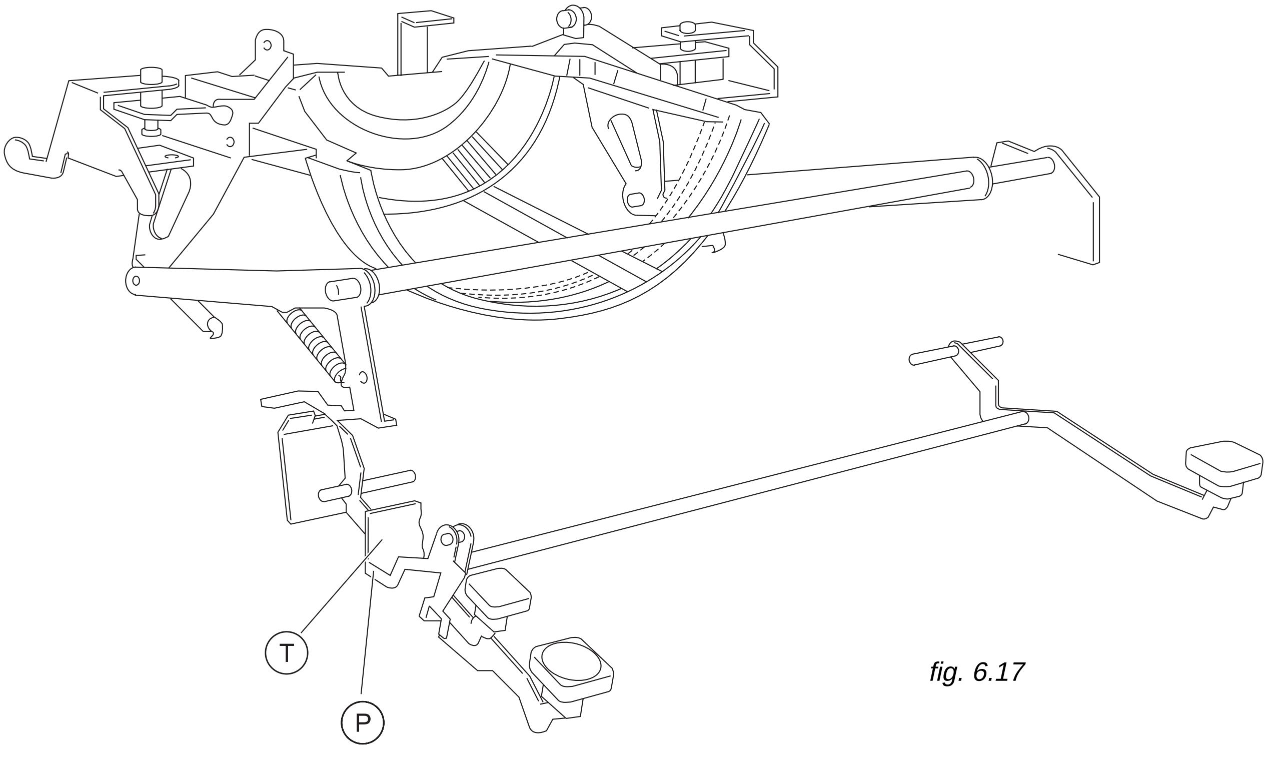


fig. 6.17

2* Move the joint upwards or downwards until there is a slight clearance (A) between the lower part of the plate and the shift lock tab (B).

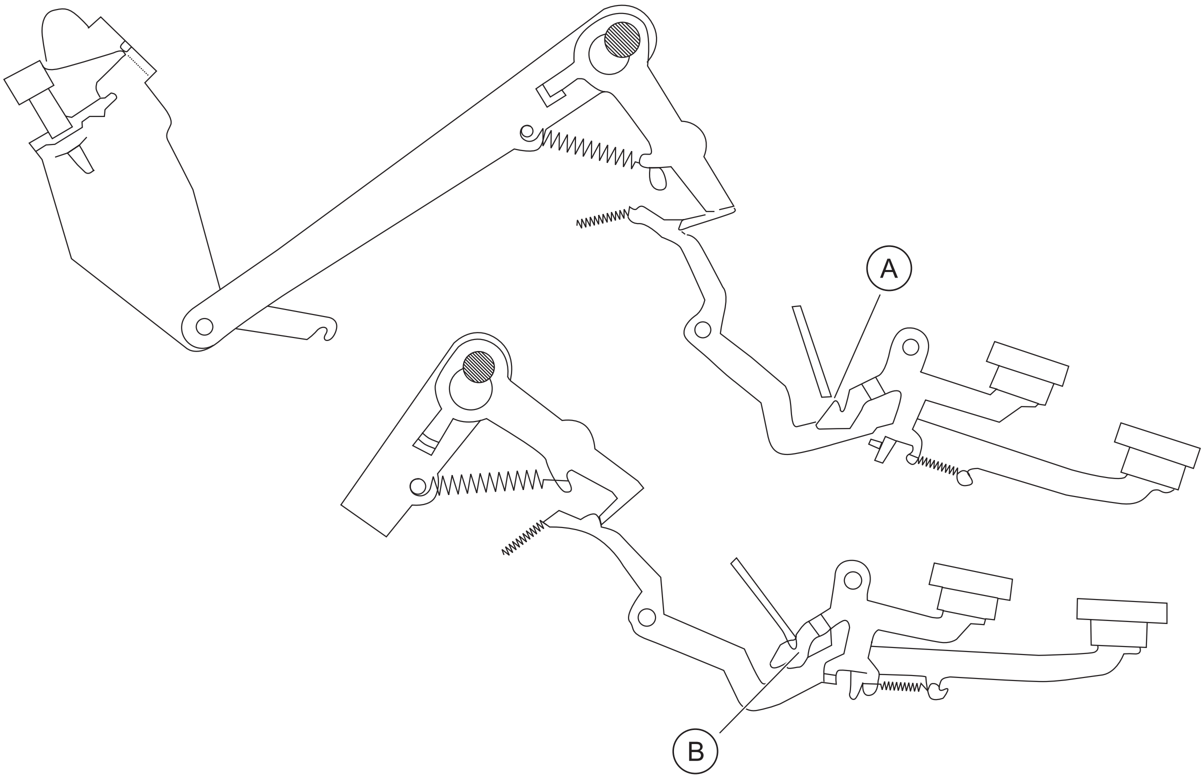


fig. 6.18

3* With the shift lock key (Z) activated, type a series of capital H's alternated with the shift lock key.

Check that the letters typed subsequently are perfectly level HHHHHHHHHHHHHHHHHHHHHH

NOTE:

If the function of the shift lock key is not correct, regulate the bend (X) on the key lever with pliers.

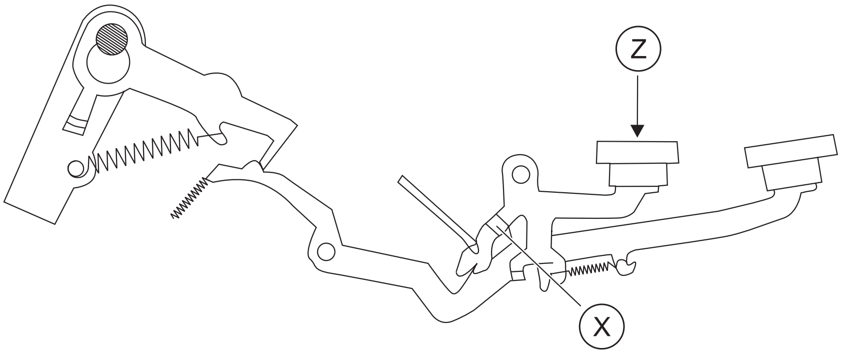


fig. 6.19

6.18 STROKE CHECK

1* Set the carrier to the lower case, the colour selector to black and press and hold down any letter key.

2* Place a piece of paper (S) between the elbow (E) of the character holding bar and the plate of the basket (P).

3* Press the bar (Z) slightly and check that the piece of paper remains blocked and does not tear when pulled.

4* Perform the same operation, placing the piece of paper between the platen (R) and the character (Z).

If necessary, using a screwdriver, regulate the screws coupling the fixed guide with the ribbon holders, pressing upwards if the piece of paper does not remain blocked in the segment and downwards if the paper tears.

5* If you regulate the coupling screws, check that the basket remains free.

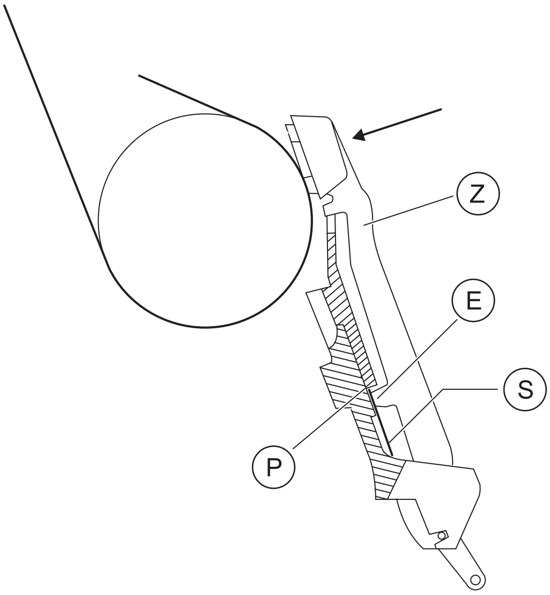


fig. 6.20

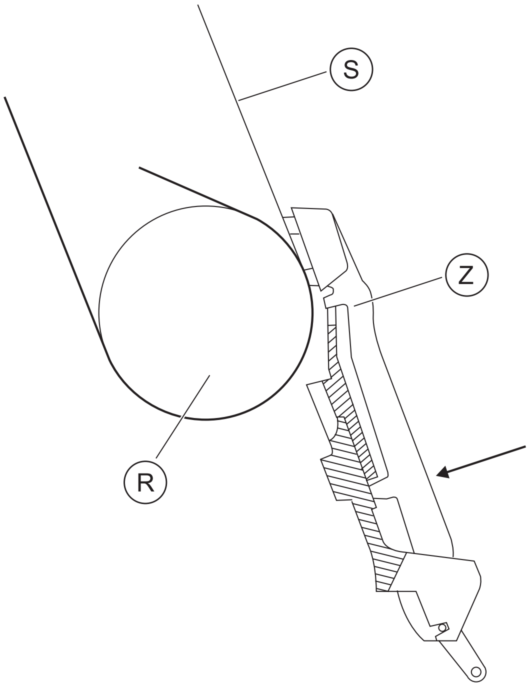


fig. 6.21

6.19 REAR BAR ADJUSTMENT

1* Position the cursor (C) on the right in line with the rear tab (B) of the frame.

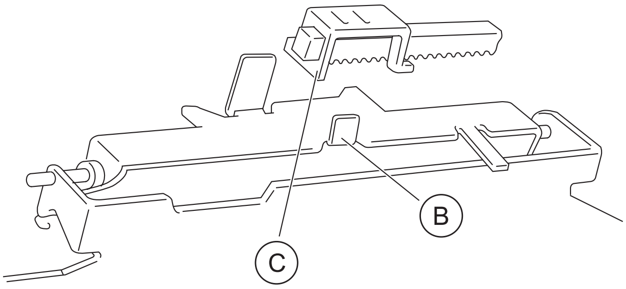


fig. 6.22

2* Move the bar sideways so that two tips may be seen through the erasure window (V).

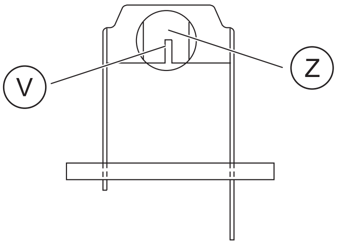


fig. 6.23

3* Check that the cursor (C) does not touch the tab (B) of the frame at the top.

4* Tighten the screws (A) on the bar.

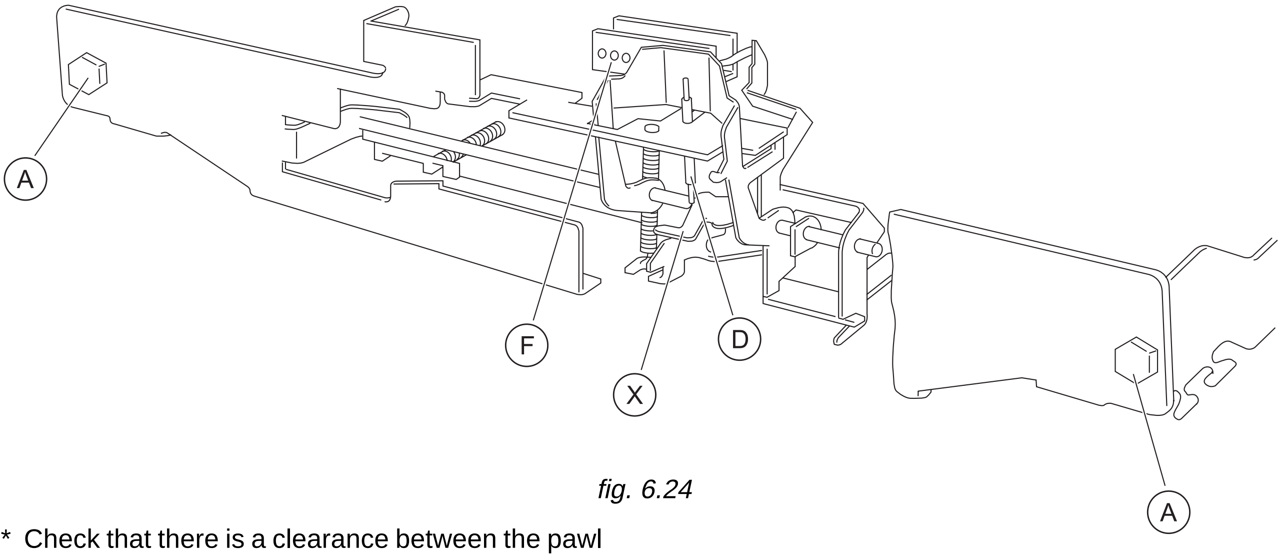


fig. 6.24

5* Check that there is a clearance between the pawl of the tabulator (D) and the locks (F) and therefore that they do not touch.

If they touch, regulate the adjustment tab (X).

6.20 RACK PLAY ADJUSTMENT

With the machine in a vertical position

1* Move the carriage to one side.

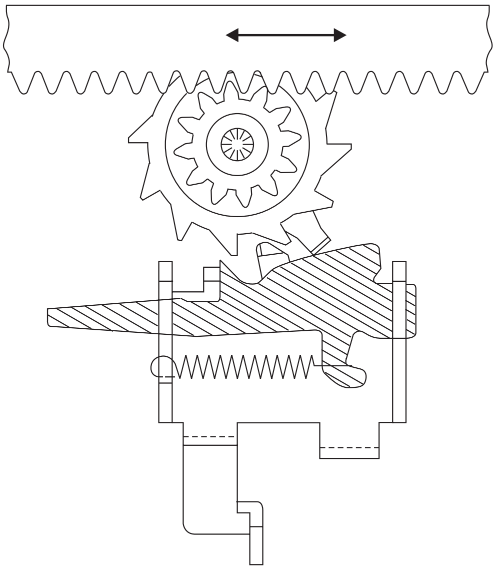


fig. 6.25

2* Press the return key (A) and, holding it down, check that there is minimum play between the rack and the escapement wheel by moving the carriage from one side to the other.

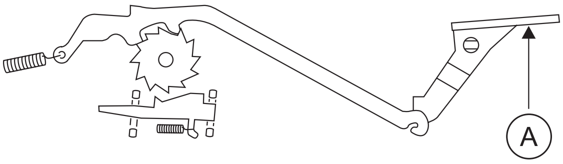


fig. 6.26

3* Repeat the operation on the other side.

If necessary, loosen the corresponding screw (B) and regulate the position of the rack with respect to the wheel.

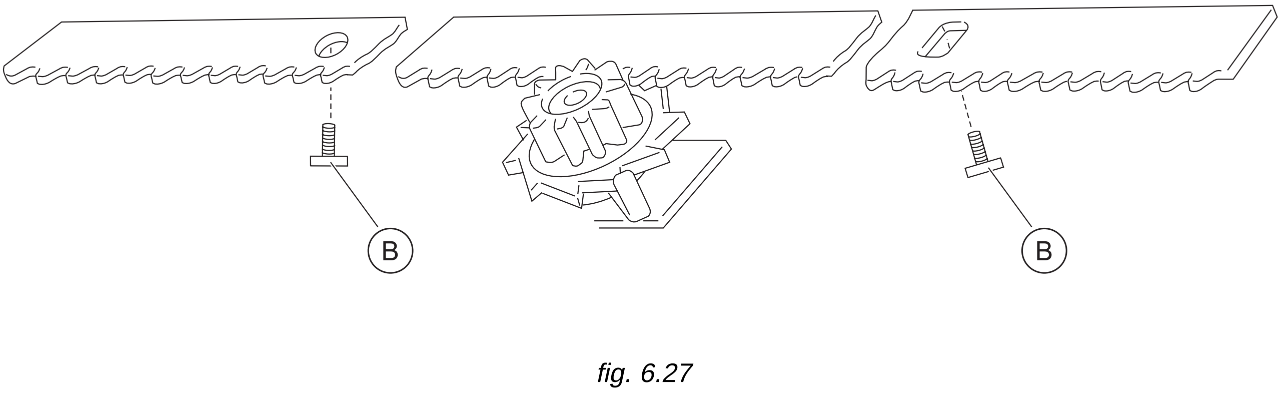


fig. 6.27

6.21 CARRIAGE RELEASE ADJUSTMENT

1* Move the carriage to the right, press the right carriage release lever (A) slightly and check one travel (L) before the carriage is free to move.

2* Repeat the operation with the other carriage release lever.

3* If necessary, regulate the levers (A and B) and arm (E) using pliers, as required.

4* Having made the regulation, check the return of the mechanism to its rest position.

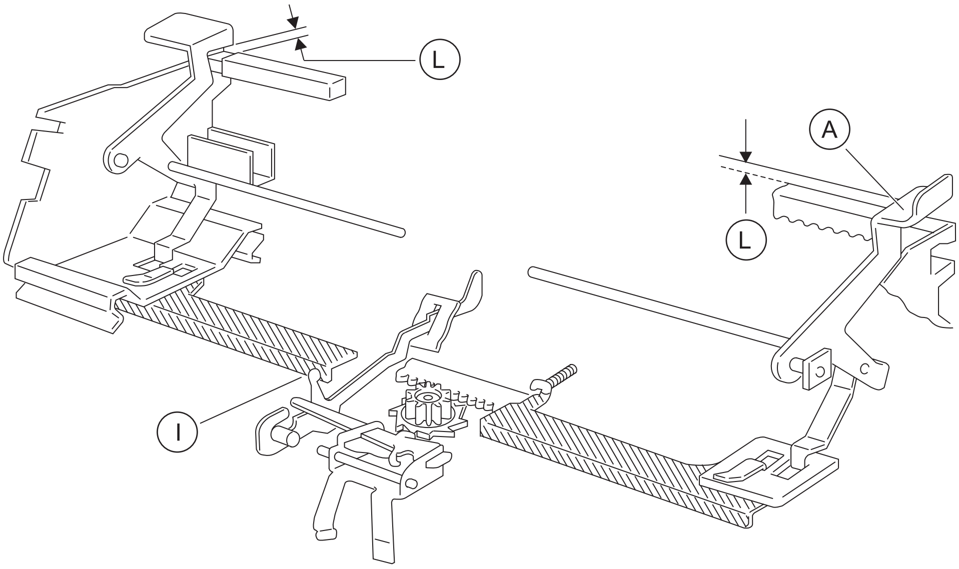


fig. 6.28

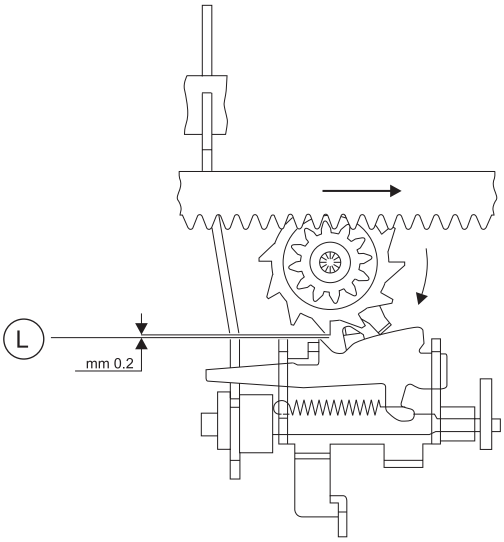


fig. 6.29

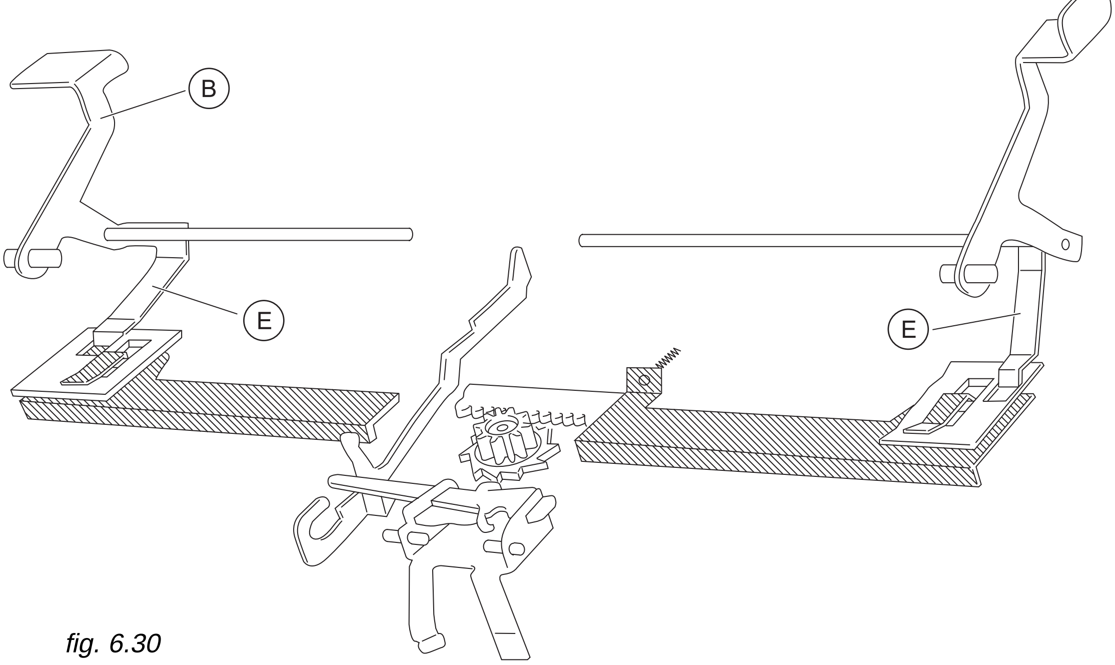


fig. 6.30

6.22 SPRING ADJUSTMENT

1* Check parallelism between the universal spring (A) and the appendix of the oscillator (B).

2* Move the segment (C) and check: that the distance between the tabs of the universal spring (A) and oscillator (B) remains unchanged when you switch from upper-case mode to lower-case mode.

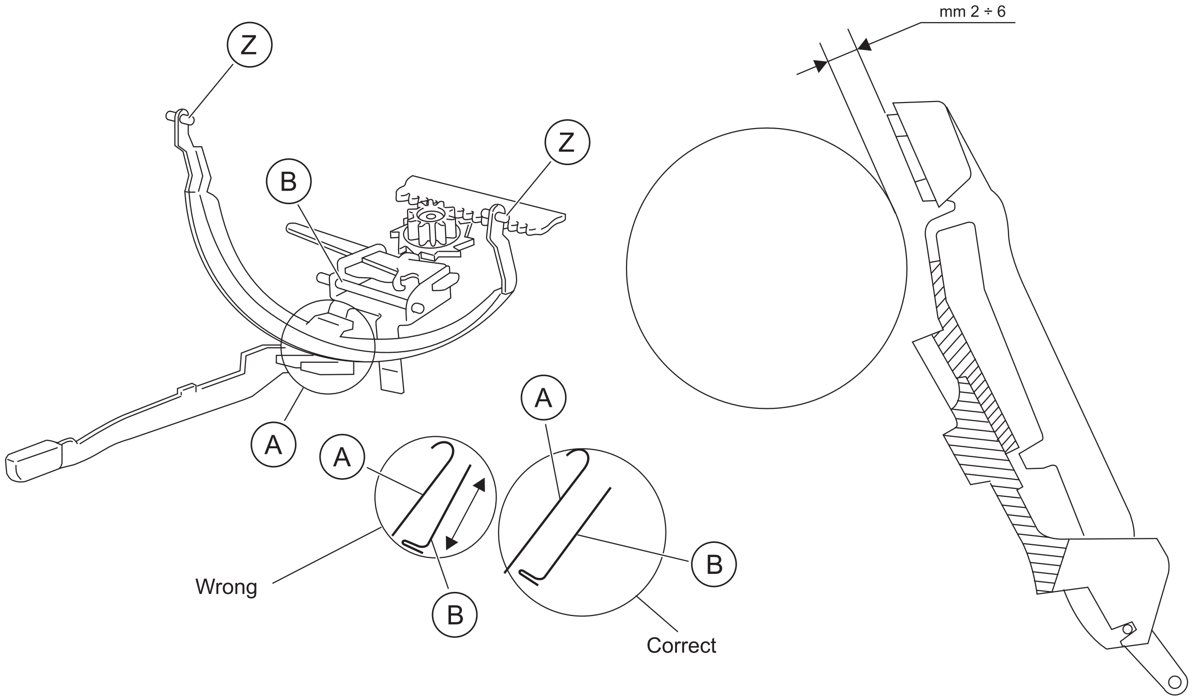


fig. 6.31

3* If necessary, using two pairs of pliers regulate the tab of the universal spring (A) or oscillator with the segment in lower-case and upper-case modes.

4* Using the brake, check the springs at the centre. If necessary, regulate the tab of the oscillator.

5* With the segment in upper case, check the springs at the ends, if they are set forwards or backwards, perform rotations on the universal flag (Z) using the pliers applied to the arms.

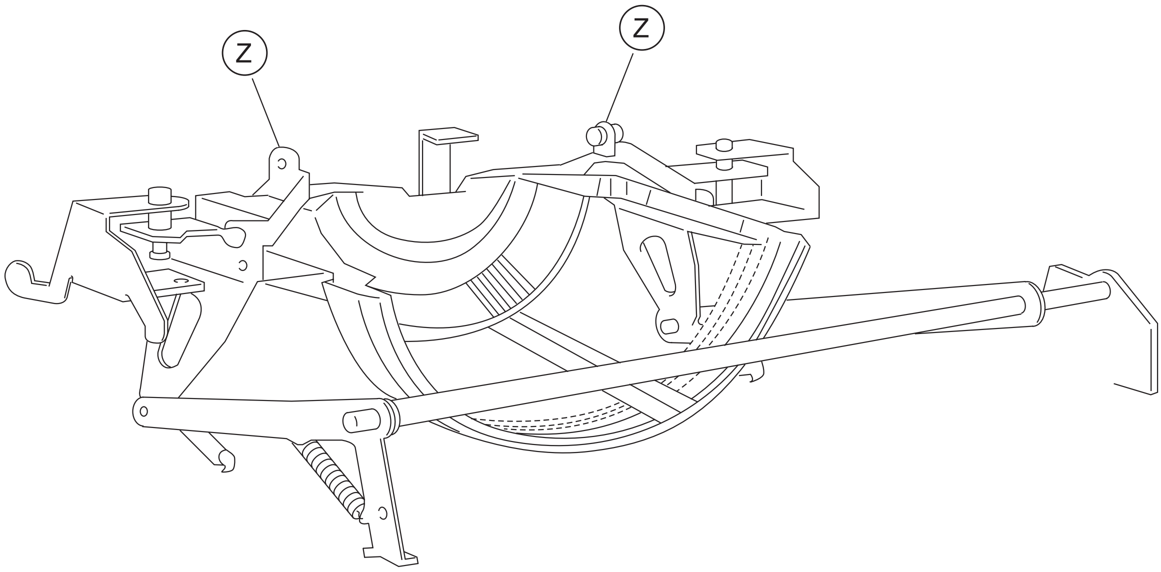


fig. 6.32

6.23 RIBBON HOLDER AND COLOUR SELECTOR ADJUSTMENT

Set the machine in its typing position

1* Using the brake, make sure that the clearance between the ribbon holding support (S) and the platen lies within the tolerance limits.

If necessary, regulate the ribbon holding support (A) by bending it.

2* Check that there is minimum play between the bolt and the ribbon holder and it moves freely.

If necessary, regulate the bolt (C) using a three-ended spanner.

Set the colour selector to red and the tension regulator to its lowest position.

3* Press a lever and check that the ribbon holder recovers completely.

4* Regulate the distance between the ribbon holder (D) and the platen (R) with the aid of pliers, checking that there is no interference from the segment or the platen.

5* Check that the tail of the ribbon holder (K) is above the tabs (A and B) of the colour selector at a distance of at least 1 m/m.

6* If necessary, regulate the tail (K) of the ribbon holder using the pliers.

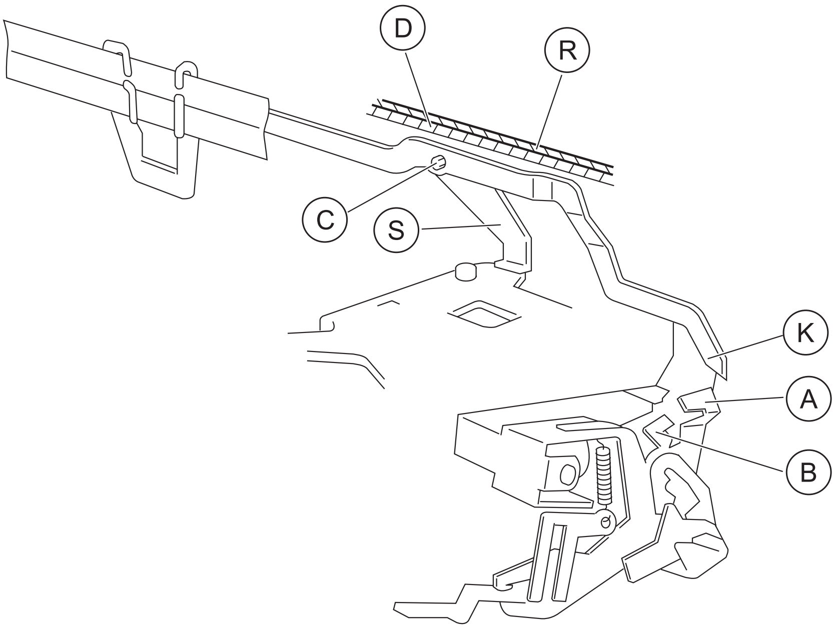


fig. 6.33

Set the colour selector to neutral and press the symbol (_) key several times.

7* Check that the distance between the print and the upper edge of the ribbon is between 0 and 1 m/m (D) and that the ribbon holder does not oscillate while the machine is printing.

8* If this distance is not correct, regulate the hook (G) joining the ribbon holder to the colour selection unit, elongating it to lower the ribbon and shortening it to raise it.

If the ribbon holder oscillates during printing, use the pliers on the top (H) of the colour selection unit, making sure that it does not interfere with the unit.

Set the colour selection unit to black, the segment to upper case and press a key.

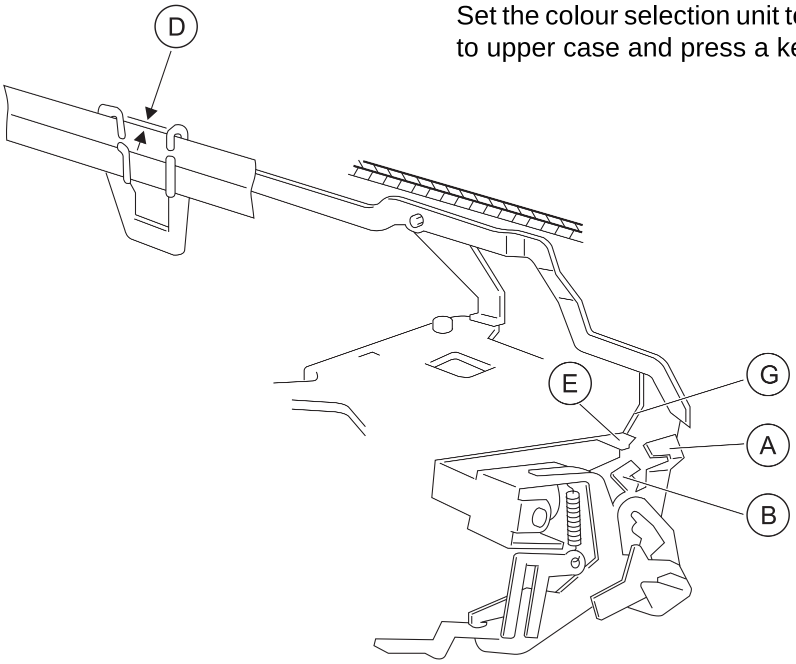


fig. 6.34

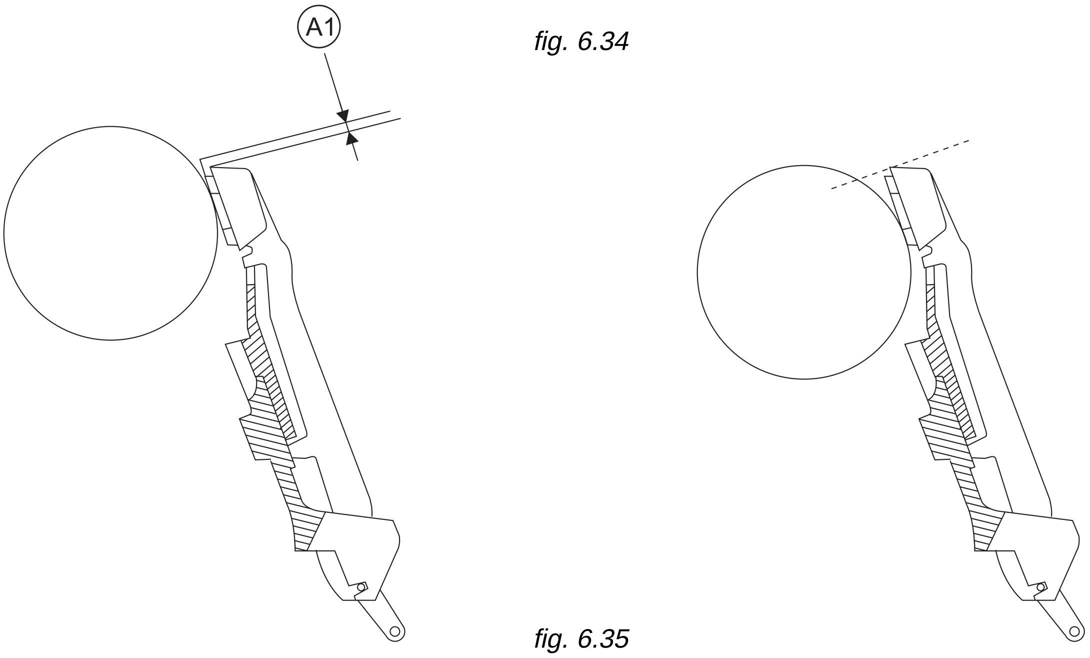


fig. 6.35

9* Under these conditions, check that the ribbon is at least 0.5 to 1 m/m (A1) below the character.

10*Check that the character is at the same height, with the colour selector set to red and the segment to lower case (a————a).

If necessary, bend the upper tabs (A or B) of the tail of the ribbon holder in the colour selection unit.

NOTE

Having used the pliers, we recommend you repeat the check.

6.24 INDICATOR ASSEMBLY AND ADJUSTMENT

1* Place a sheet of paper in the machine, press the full stop key repeatedly. Set the machine in a vertical position.

2* Assemble the transparent cover (Y) in the fixed guide, holding it above the dots (A) with your left hand.

3* Assemble two screws (B).

4* Check that the transparent cover is aligned and centred with the dots printed on the sheet of paper.

5* Check that there is a clearance of between 0.7 and 1.5 m/m between the transparent cover and the platen.

6* Check that it does not interfere with the segment or the feeder rollers.

If necessary, use the screwdriver to correct the position.

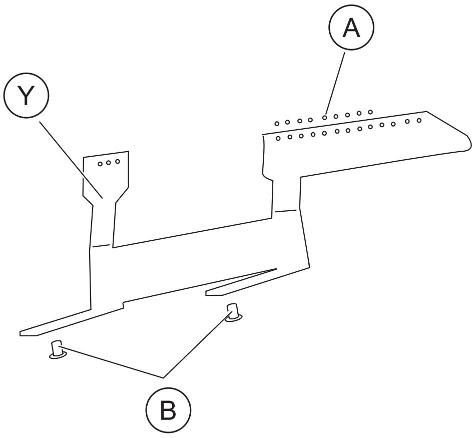


fig. 6.36

6.25 SPACE BAR ASSEMBLY AND ADJUSTMENT

Set the machine in a vertical position and take a space bar tie rod (Z).

1* Fasten the tie rod to the spring (M).

2* Insert the tie rod in the space bar mechanism (B).

3* Insert it in the tail of the oscillator (C).

4* With the aid of pliers, bend the tie rod so that it does not slide out.

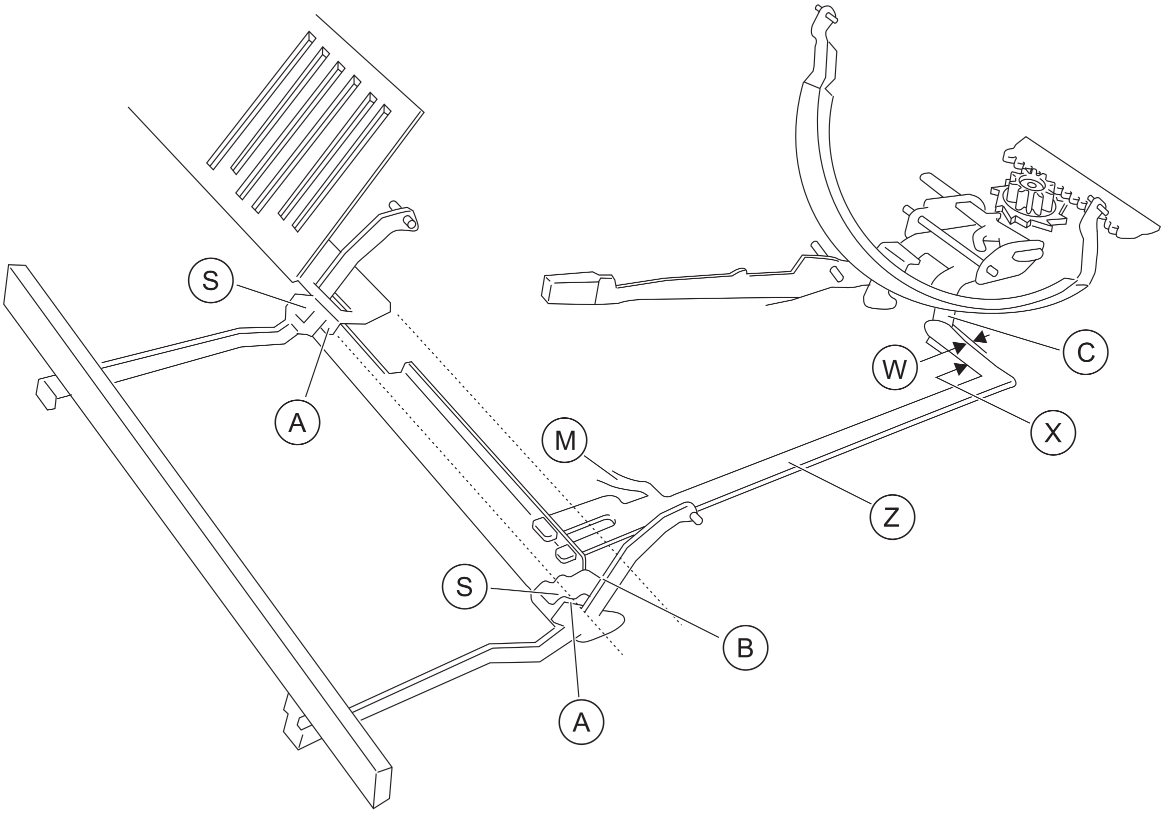


fig. 6.37

Check the initial play (W) between the space bar tie rod (Z) and the oscillator (C).

If necessary, use the pliers at point (X).

Press the space bar slightly and check:

a) that the key still has 1 mm of travel after the first release of the escapement. If necessary, regulate the lower tabs (A) with pliers.

b) that the key has about another 1 mm of travel after the second release of the escapement on the return to its rest position. If necessary, regulate the upper tabs (S) with the pliers.

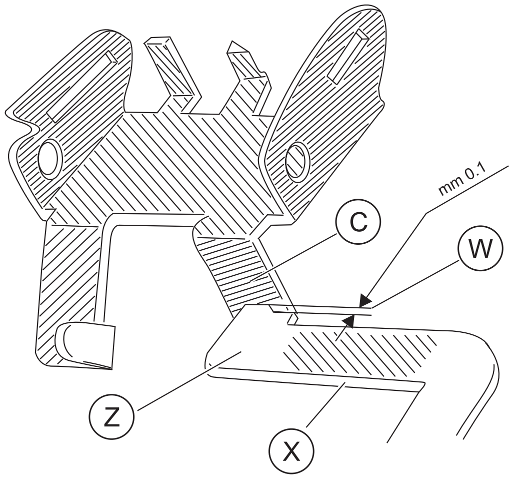


fig. 6.38

6.26 START OF TRAVEL ADJUSTMENT

Set the machine in its normal position with its rear part facing the operator and with the cursor, to your left, shifted ten spaces to the right.

1* Move the adjusting screw (A) until there are still about five or six adjusting threads left.

Move the carriage (X) towards the tab (W) and press the return key and the margin release key.

2* Check that there a visible clearance between the tab (W) and the cursor (X).

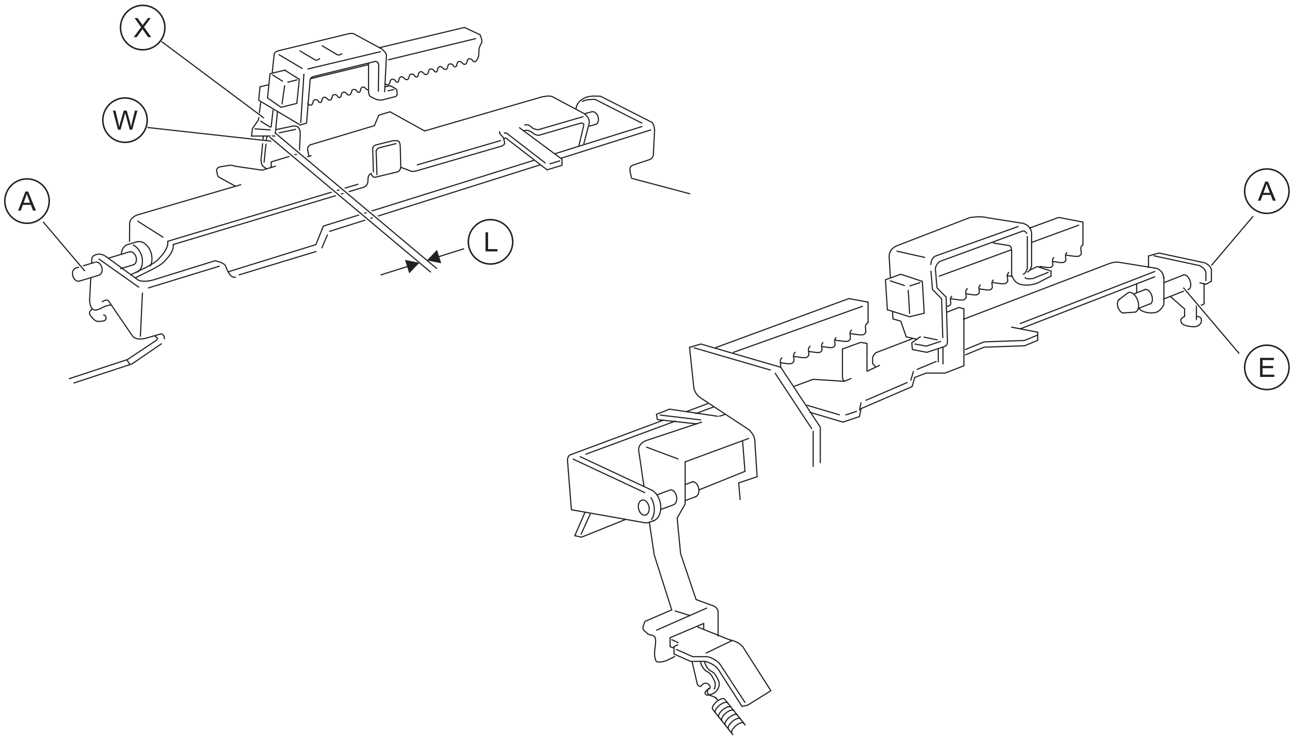


fig. 6.39

If necessary, regulate the adjusting screw (A) until a clearance is obtained.

3* Tighten the nut (E), keeping the screw still with a screwdriver and check again.

Check that no space is lost when the carriage is moved to the start and that, when a letter I is typed, it coincides with the zero on the paper bail, to make sure that the screw is correctly regulated.

6.27 TAB STOP CLEAR ADJUSTMENT

1* Move the carriage to the left and, using a spanner, slide the stops (A) along the bar (Z) and remove them.

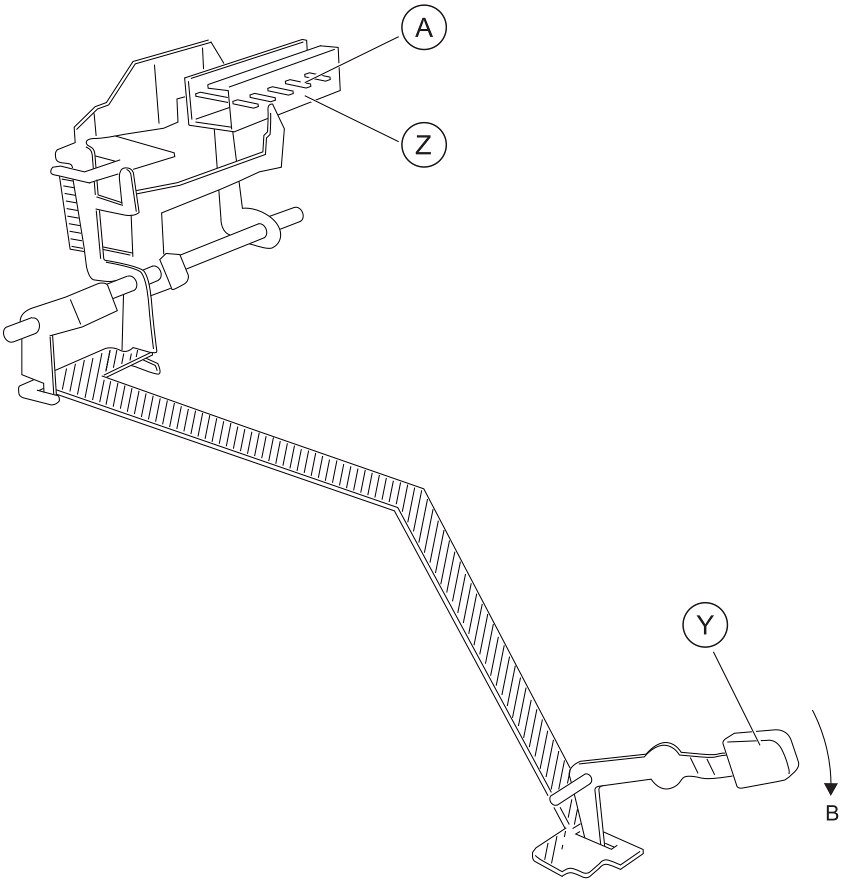


fig. 6.40

Hold the setting key (Y) pressed in direction B, move the carriage to the right and left and check:

a) that the stops project by 0.3 to 0.5 mm. If necessary, carry out a prising action on the crossbar coupling lever.

6.28 TABULATOR RELEASE ADJUSTMENT

Press the tab key (A) slightly and check:

1* that some travel (L) remains after the mechanism has been activated.

If necessary, using pliers in (B) and flat tongs in (C), bend as required.

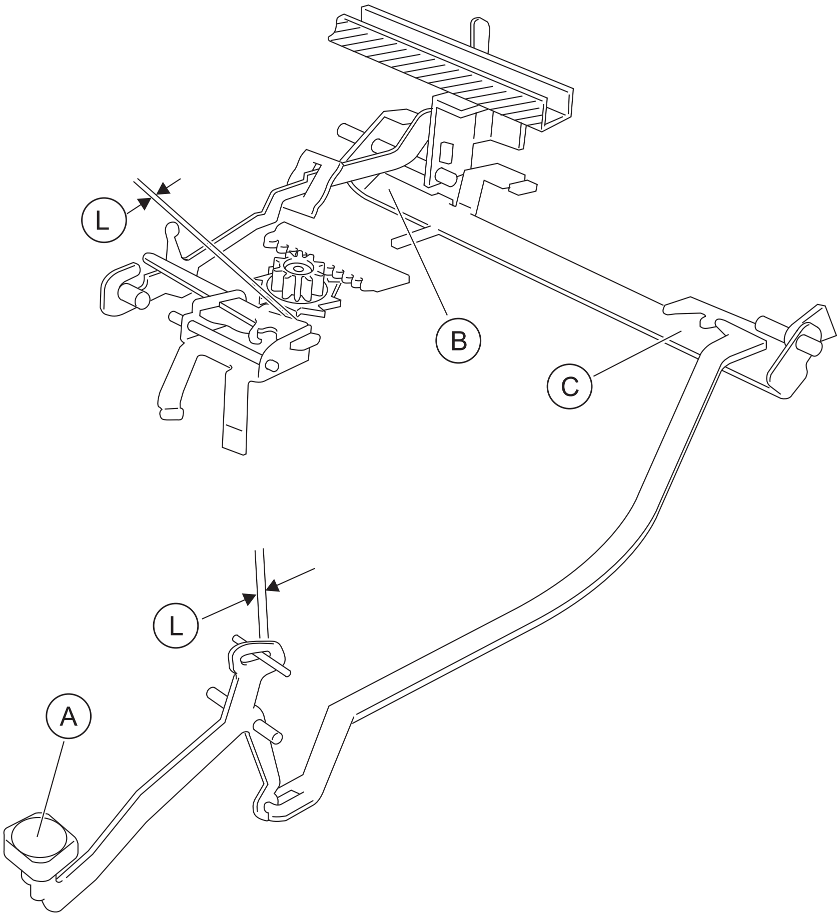


fig. 6.41

6.29 CURSOR ADJUSTMENT

Set the left-hand cursor in line with position 10 on the graduated scale, move the carriage in either direction and check on the cursors that:

1* The frame (Y) does not interfere laterally (A).

2* it locks securely (B).

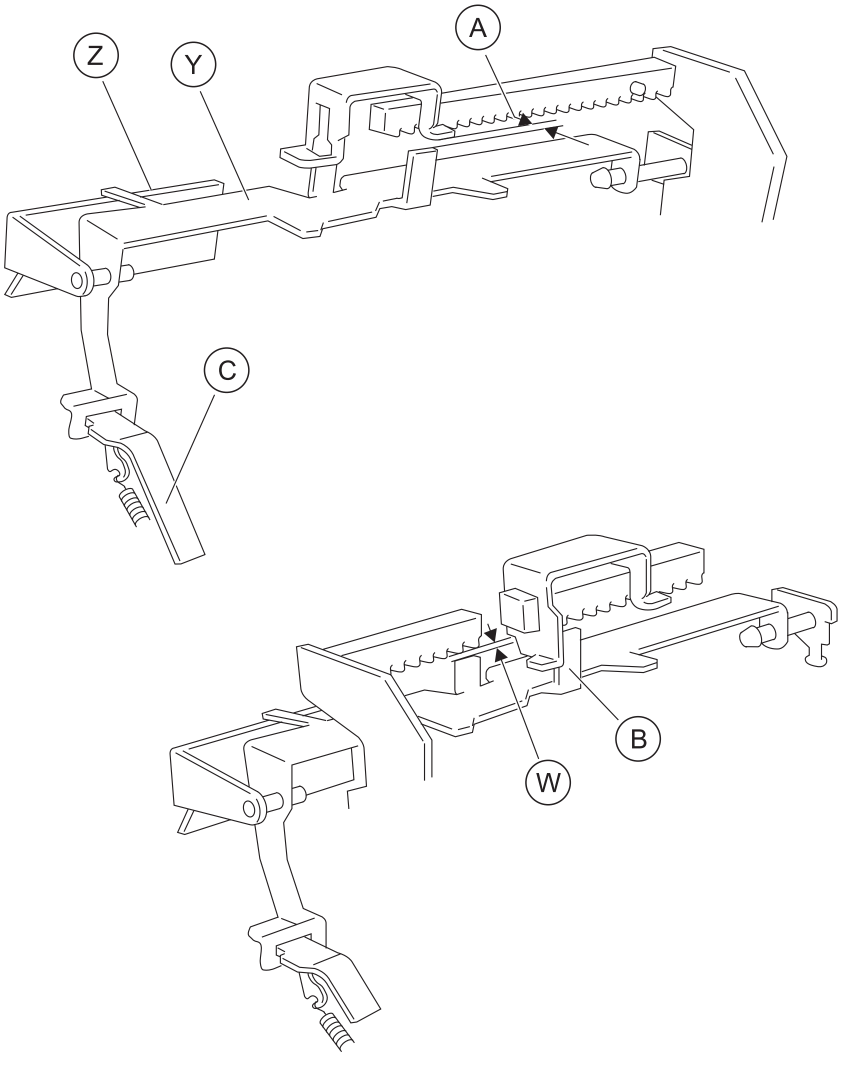


fig. 6.42

If necessary, regulate:

a) the margin release tie rod (C) to enable the frame (Y) to move to its rest position.

b) the brake tab (Z) to set it in a suitable position.

3* Check that the frame (Y) does not interfere with the height of the cursor (W).

If necessary, loosen the screws on the crossbar to lower it.

Move the carriage to the start of its travel by pressing the margin release key, checking the clearance between (Q) and (N).

4* Press the space bar several times and check that the cursor (Q') moves past the tab (D) easily overcoming the pressure of the margin release spring.

If this is not the case, regulate the tie rod (T) of the margin release with pliers, checking that the tab (R) of the frame is at rest.

NOTE

If, despite the regulation made, the cursors interfere with the frame, adjust the rear bar coupling screw without exceeding the tolerance limits of the tabulator brakes.

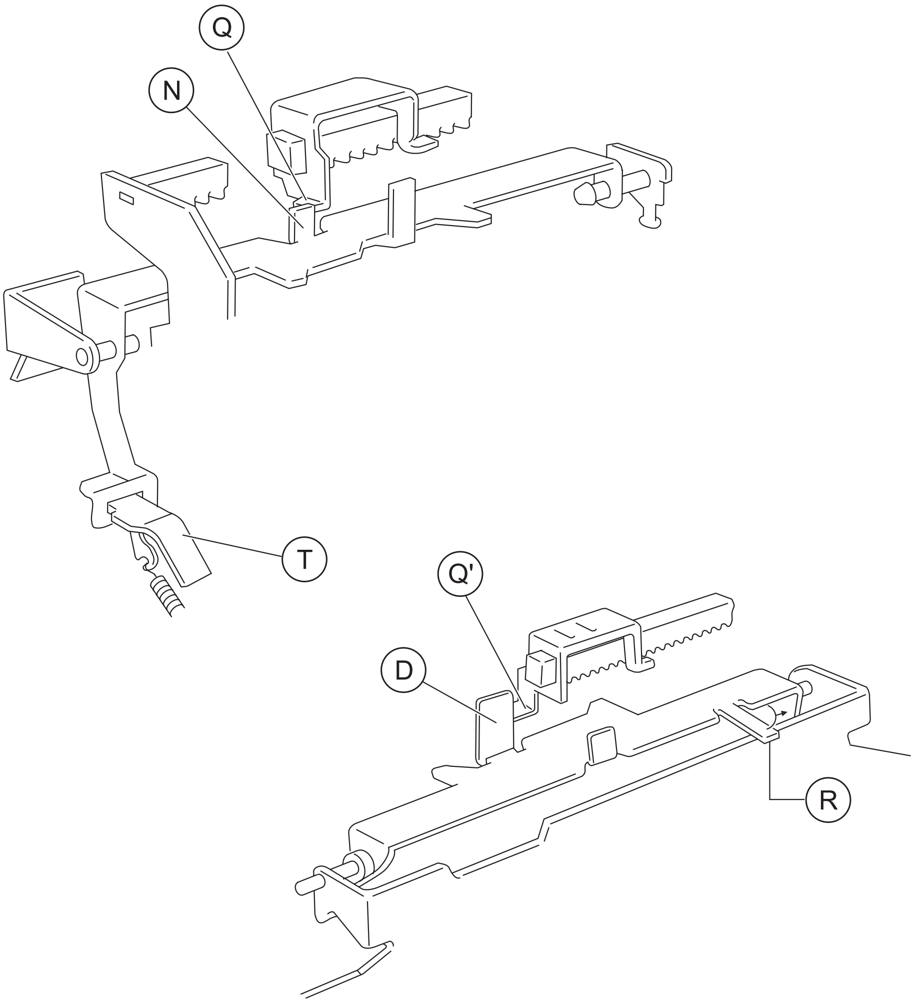


fig. 6.43

6.30 INVERSION TIE ROD ASSEMBLY AND ADJUSTMENT

1* Take a tie rod (T) and assemble it between the control lever (A) and the key lever (B).

2* Check that the play between the tie rod and the lever is minimal and that the key is at the same height as the other keys on the keyboard.

Regulate the lever (A) with pliers.

3* Check for interference of the hook (C) with the escapement wheel (D) by moving the carriage.

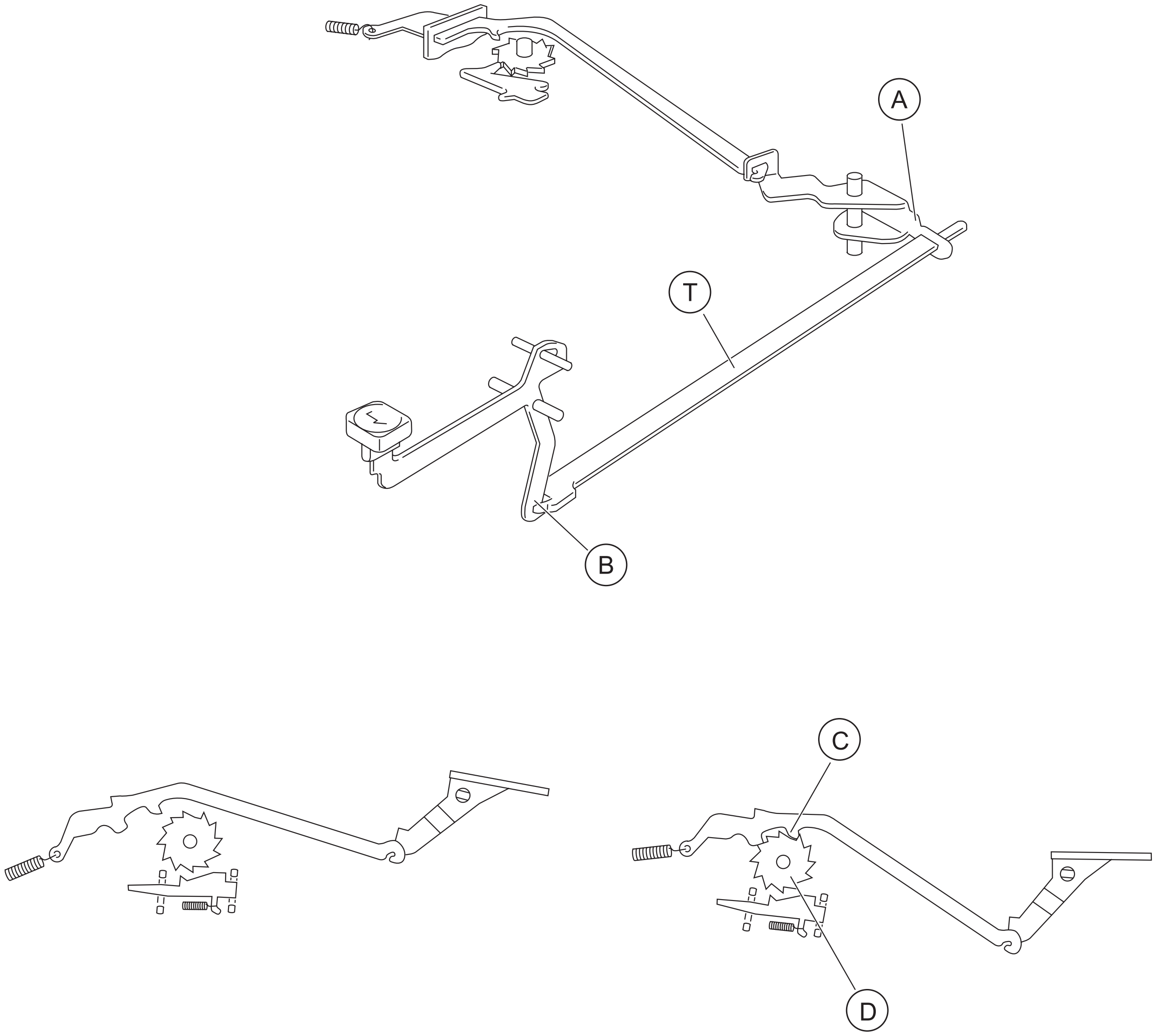


fig. 6.44

6.31 LEVER LOCK ADJUSTMENT

1* With the carriage in its normal position, check that there is a visible clearance (L) between the arm (H) and the tail of the oscillator (G).

2* Check that the tie rod (T) of the flag doe not interfere with the elastic joint (E) of the side, when the key is pressed.

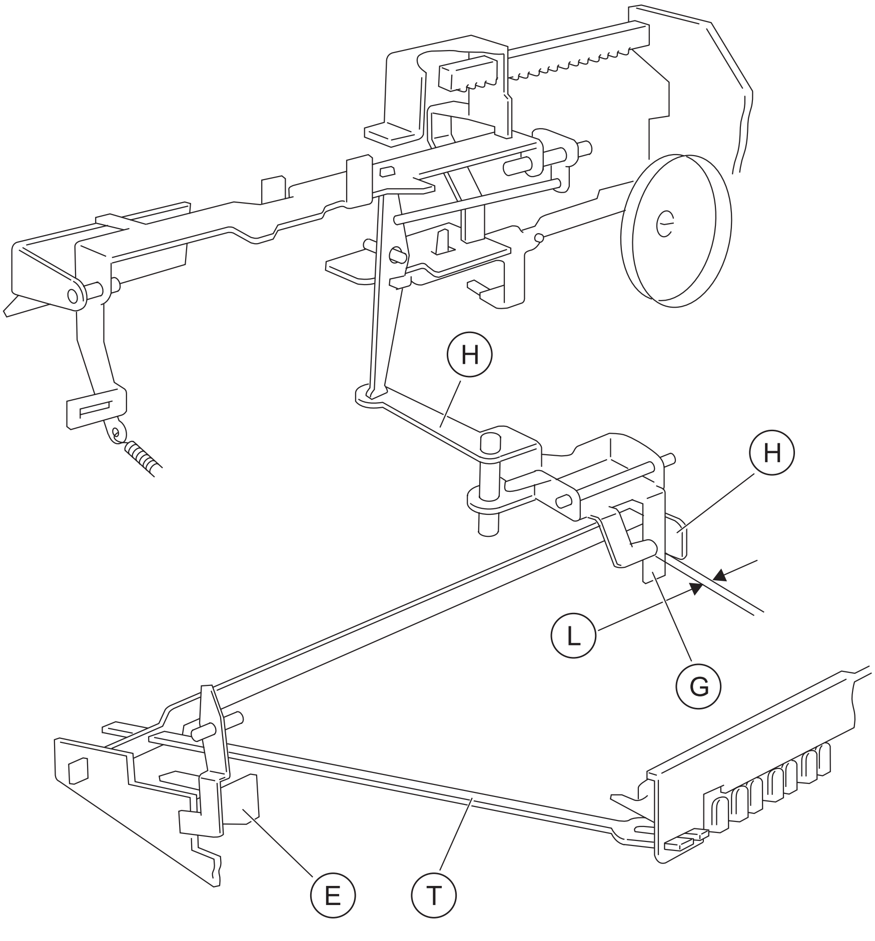


fig. 6.45

3* With the carriage at the start of its travel, check that the push rod (H) does not interfere in height (L) with the tail of the oscillator.

4* Check in the same way, with the carriage at the end of the travel, that the push rod interferes with the travel of the oscillator and that the closing tie rod is blocked by the elastic brake (L’).

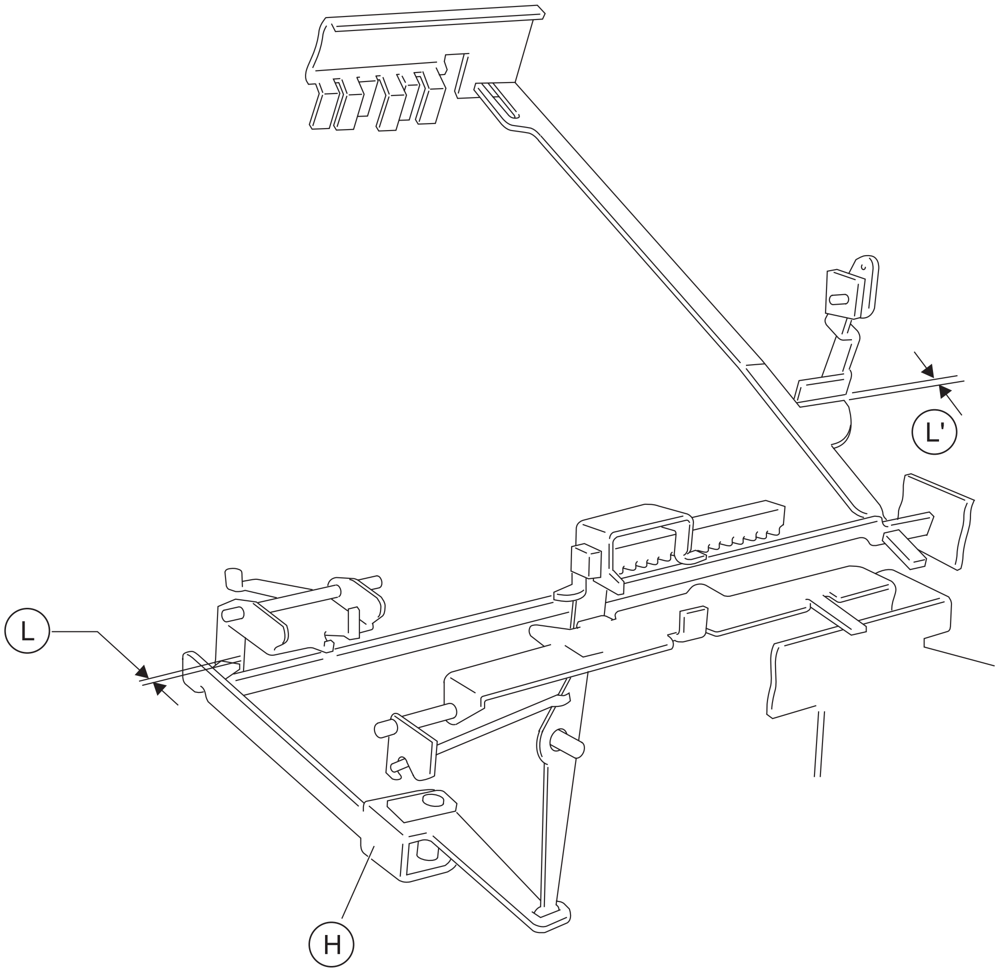


fig. 6.46

6.32 BELL ADJUSTMENT

1* Move the guide to the end of its travel.

2* Check that the bell rings with a clean stroke.
If necessary, regulate using pliers:

a) the control (A) if the cursor does not have sufficient grip.
b) the lever (B) if the hammer does not strike the bell correctly.

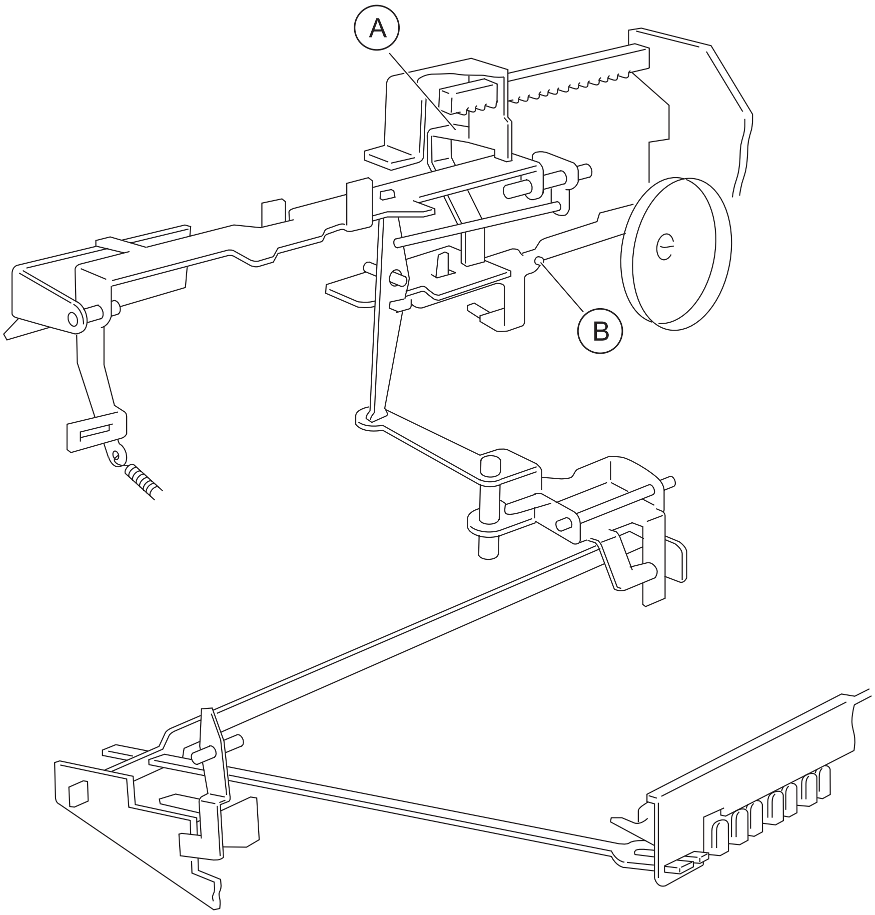


fig. 6.47

6.33 CENTRIFUGAL BRAKE ADJUSTMENT

Regulate the action of the brake bridge on its structure so that, with the mechanism at rest, the projections of the structure do not interfere with the appendix of the brake and, with the mechanism in operation, it engages with the projections, reaching the end of the structure, and is centred with respect to the projections.

To do this, use the pliers as required on the appendix of the brake or on the appendix resting on the tabulator bar to obtain the correct function.

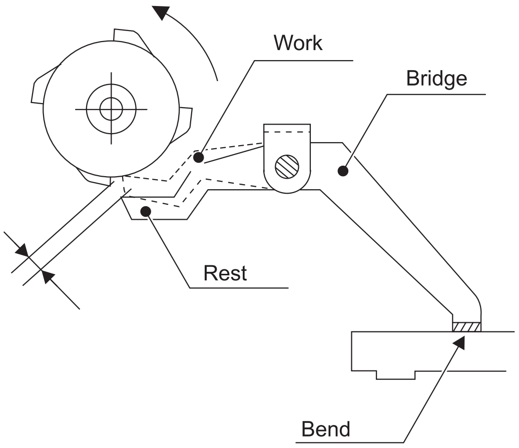


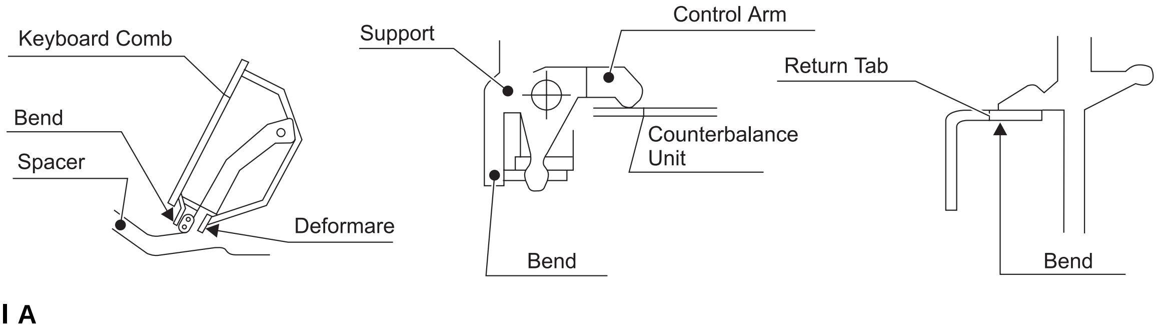
fig. 6.48

6.34 AUTOMATIC REPEAT SPACE BAR ADJUSTMENT

Regulate the travel of the automatic repeat space bar tie rod so that, when the mechanism is at rest, there is a visible clearance (max 0.3 mm) between the tie rod and the bridge and a safety overtravel once the mechanism has been activated.

To do this, regulate the locks on the keyboard comb **(detail A)** or on the space bar bridge, by opening and closing the lock.

Regulate the clearance between the appendices of the carriage release push rod and the transmission gear of the push rod which activates the automatic repeat space bar, using pliers on the transmission gear.



detail A

fig. 6.49

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UPDATING STATUS

DATE	PAGES UPDATED	PAGES	CODE
11/1999	1ª EDITION	51	686750M-00